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The Quarterly Journal of the Agricultural History Society

Agricultural History is designed as a medium for the publication of research and documents pertaining to the history of agriculture in all its phases and as a clearinghouse for information of interest and value to workers in the field. Materials on the history of agriculture in all countries are included, and also materials on institutions, organizations, and sciences which have been factors in agricultural development. The Society is not responsible for the statements or opinions of contributors.

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LIBERTY, PROGRESS, AND SECURITY: FIFTEEN CENTURIES OF BRITISH AGRICULTURE

A. N. DUCKHAM, O.B.E., M.A.

Agricultural Counsellor, British Embassy, Washington, D. C.

With Common Sense the people contrived every craft, And for profit of all men set apart plowmen, To till and work, as true life asketh, To live their day with loyal work while life and land remain.

-William Langland (1330?-1400?), Piers Plotoman . . . a version by Arthur Burrell (London, 1912).

My object today is to sketch the history of British farming and to observe, in doing so, the varying fortunes of three of the great political and economic needs of Western man, namely Liberty, Progress, and Security.¹. These three are often thought to be mutually inconsistent. Does British agricultural history suggest that they can grow simultaneously and live together in harmony?

In the last fifteen centuries, there have, I think, been four events which have set off chain reactions that have radically affected liberty, progress, and security in our agriculture and which have literally changed the face of Britain. They were:

- The Saxon exploitation of the moldboard plow in the fifth to tenth centuries.
 - 2. The Black Death (1349).

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- 3. The introduction of turnips and clover as farm crops in the late eighteenth century.
- 4. The opening up of the American prairies in the late nineteenth century.

The Moldboard Plow. In Britain, farming be-

¹ This article is the address presented by the author at the luncheon of the Agricultural History Society with the American Historical Association at Cleveland, Ohio, on December 27, 1947.

In addition to the citations in the footnotes that follow, the sources consulted in connection with the article include H. S. Bennett, Life on the English Manor: A Study of Peasant Conditions, 1150-1400 (Cambridge, 1938); W. H. R. Curtler, A Short History of English Agriculture (Oxford, 1909); Lord Ernle, English Farming, Past and Present (ed. 3, London, 1922); Naomi Riches, The Agricultural Revolution in Norfolk (Chapel Hill, N. C., 1937); and G. M. Trevelyan English Social History, A Survey of Six Centuries (Toronto, 1946).

gan four to five thousand years ago on the drier thin-soiled open country of our grass-covered and lightly forested downlands and on the valley soils which were lightweight to be turned by two-ox scratch plows.² Even today vestiges of the small square Celtic fields, which were first worked by digging stocks or foot plows and later by these scratch plows and then abandoned to grass when farming moved into the valleys, can be found, in the form on "lynchet" ridges, on our chalk hills.

Just before the Christian era, the Iron Age Belgae brought to Britain an axe heavy enough to clear the dense deciduous oak-ash-beech forest association of our heavier lowlands. They also introduced a moldboard plow (with colter and share) which could turn the damper, heavier, and richer but intractable valley soils after they had been cleared of the forest which for a thousand years or more was our agricultural "frontier." My father's farm in Kent had both light upland and heavy lowland soils, and I can fully sympathize with the struggles of those primitive valley farmers.

The common saying goes, that on the hill A man may lie in bed to work his farm, Propping his elbows on his window-sill To watch his harvest growing like a charm. But the man who works the wet and weeping soil Down in the Weald, must marl and delve and till His three-horse land, fearing nor sweat nor droil.

But yields in the valleys were (and are) higher, and the Romans apparently stimulated this movement to the lowlands. In general, however, their 400-year occupation left little or no impression on British agriculture. Our debt to Rome is cultural, not material.⁴

It was not, therefore, the Romans but the colo-

- ² Grahame Clark, Prehistoric England (ed. 2, London, 1941), 15-27; and Sir Cyril Fox, The Personality of Britain: Its Influence on Inhabitant and Invader in Prehistoric and Early Historic Times (ed. 4, Cardiff, Wales, 1943), 64-76.
- V. Sackville-West, The Land (London, 1926), 13.
- ⁴ James A. Williamson, The Evolution of England, A Commentary on the Facts (ed. 2, Oxford, 1944), 25.

nizing genius of our Teutonic and Scandinavian conquerors and their exploitation of the moldboard plow which impressed upon England an agricultural system that outlived feudalism and persisted a thousand years. This plow, which called for a team of 6 to 10 oxen and needed about 22 yards to turn round at the headlands, favored long strips of work. It was the progenitor of the communal "open-field" strip-farming system, and it represented, with its ox team, a "capital investment" far beyond the means of most individuals. Either the thegn (and later the lord of the manor) provided the plow and the team or each peasant "lent" his ox or his part of the plow,5 and thus the strips were plowed in common. The produce of the strips of the open field (with its 2-year-grain and fallow-rotation) belonged to the individual families of the kindred which was the local unit of government.

Under the Saxons, the peasant was thus a disciplined but relatively free member of a society of communal farmers. He was, however, by the eleventh century, falling under the power of the thegns and the Church.⁶ After their conquest of 1066, the Normans built on this incipient feudalism an aristocratic pyramid of lords and barons who held their lands from and owed allegiance to the King. The Church, too, grew in rural wealth and power. Even John Barbour, who wrote,

Ah, Freedom is a noble thing Who freedom hath, hath a great liking

was, as Archdeacon of Aberdeen, a serf owner. The peasants, however, were degraded to subtly differentiated degrees of serfdom, deprived of much of their personal liberty and forced by labor service—the form in which they paid their rent to the lord of the manor—to become part-time farmers. As the contemporary Abbot of Burton claimed, they "'owned nothing but their own bellies.'" They comprised, to use Arnold J. Toynbee's phrase, an "internal proletariat" which

was "in" but not "of" feudal society. However, except when the harvest failed, they had considerable economic and military security.

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In T. S. Eliot's poetic drama of the death of Thomas à Becket, the chorus of the women of Canterbury appears to sum up agrarian life in the Middle Ages very well:

There have been oppression and luxury,
There have been poverty and licence,
There has been minor injustice.
Yet we have gone on living,
Living and partly living.
Sometimes the corn has failed us,
Sometimes the harvest is good,
One year is a year of rain,
Another a year of dryness,
One year the apples are abundant,
Another year the plums are lacking.
Yet we have gone on living,
Living and partly living.9

The Normans changed but little the agrarian techniques and farm management systems of the Saxons. They left unmolested the strips of the open arable fields and of the hay meadows and did not substantially interfere with the common grazings. Further, the feudal lord of the manor, his officers, and his courts served a useful purpose in settling the numerous and inevitable disputes of communal farming.

But such gains in social efficiency were partly offset by some loss of technical efficiency. It must have been chronically inconvenient to do labor service on the lord's demesne (home farm) and on his strips in the open fields and meadows at times of the year (or on days of the week) when the villein wanted to work on his own parcels of land. How galling it would be to have to cart the lord's hay on the only fine day for weeks whilst one's own strips in the same communal meadow remained ungarnered!

Nevertheless, even though feudalism gave security only at the cost of liberty, it did not, apparently, seriously impede technical progress. The feudal "open-field" system was well adapted to the implements and farming techniques of its day. Within its framework, many improvements were effected, and for this much credit must be given to the travels of the monks—the agricultural

^b Nellie Neilson, "Medieval Agrarian Society in Its Prime: England," in *The Cambridge Economic History* of Europe from the Decline of the Roman Empire, edited by J. H. Clapham and Eileen Power (Cambridge, 1941), 1:440.

⁶ Williamson, The Evolution of England, 44.

⁷ Quoted in G. G. Coulton, Medieval Panorama: The English Scene from Conquest to Reformation (Cambridge, 1938), 76.

⁸ Arnold J. Toynbee, A Study of History, abridgement by D. C. Somervell (London, 1946).

⁹ T. S. Eliot, Murder in the Cathedral (London, 1935), 18-19.

attachés of the Middle Ages. The plow was slowly improving. The clod breaker was gradually vielding to the harrow, the sickle to the scythe, and the beating stick to the threshing flail, whilst the horse began to displace the ox following the invention of an improved horse collar. Some clearing of forest and wasteland for agricultural purposes was proceeding whilst, on the better lands, the three-course rotation (winter grain, spring grain, and fallow) was beginning to displace the standard two-course system.10 The latter was probably inherited from the drier Mediterranean area and the insertion of an extra grain crop-a great advance—was found to be practicable in the moister climate and on the more fertile forest soils of the Lower Rhine Delta and Eastern England.

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Incidentally, this northwestern European region, which is untroubled by soil erosion, has for nearly two thousand years had one of the best farming climates and most progressive agricultural economies of the world. At least until the nineteenth century and the advent of the tractor and modern science, it was, after the collapse of Rome, the cradle of every major technical improvement in crops and cultivation and the birthplace of most of the improved breeds of livestock.

The Black Death. It was as true in the "melancholy" fourteenth century as it is today that, in Robert Bridges' words,

Our stability is but balance and wisdom lies In masterful administration of the unforeseen.

But the stability of the medieval farming and social system, its slow technical progress, and its steady agricultural encroachment on the forests and wastelands were rudely upset by the administratively unforeseeable contingency of the Black Death, which carried away one-third to one-half of our people.¹¹

The plague swept away Piers Plowman's vision of a "fair field full of folk." It left many strips without tenants and greatly raised the price of free labor—much to the annoyance of the unfree peasants who, in 1381, rebelled against labor service, captured London, and ultimately achieved freedom. It stimulated the more progressive or more fortunate lords of the manor to enclose all or part of the open fields, meadows, and commons under

Charles Parain, "The Evolution of Agricultural Technique," in The Cambridge Economic History of Europe from the Decline of the Roman Empire, 1:127-132.
 Williamson, The Evolution of England, 110.

their control. As a money economy replaced a natural economy, the lords used this new land to meet the rising demand for wool and to supply the growing towns with food, or they let this enclosed land, sometimes with livestock and equipment, on cash or on stock and share tenancies.¹²

As these landlords achieved riches and rural power, others, less fortunate, were squeezed out and became minor squires or yeoman farmers, whilst the peasants gradually threw off the yoke of feudalism and became either relatively well secured yeomen or, as free landless laborers, achieved the dubious liberty of poverty. Thus, the nineteenth-century three-tiered social structure of rural Britain, namely landlord, yeoman owner or yeoman tenant, and landless laborer, slowly emerged.

Although the Black Death, and the times of trouble which it heralded, must have checked technical progress, output was apparently slowly increasing and, just before the curtain rose on the Agricultural Revolution of the eighteenth century, wheat yields of 15 to 20 bushels per acre were not uncommon. This compares very favorably with the 5 to 10 bushels of medieval times, with the 20 to 30 bushels of the earlier "great improvers" and even, considering the resources then available, with the 50, 60, or more bushels of today.

The reasons for this improvement were many and varied. Enclosed land could be farmed better and commanded higher rents. Thomas Tusser, the farming poet of Elizabethan England (who incidentally farmed in the Suffolk village where I served part of my agricultural apprenticeship) put it simply:

More profit is quieter found, (Where pastures in severall be;) Of one seely acre of ground,

Than champion [i.e., unenclosed] maketh of three.13

¹² The Black Death led to numerous more or less unsuccessful attempts to put price ceilings on wages and commodity prices and to prevent peasants leaving the land. For instance, a royal statute of 1388 stated: "Item. It is ordained & assented, That he or she which used to labour at the Plough and Cart, or other Labour or Service of Husbandry till they be of the Age of Twelve Years, that from thenceforth they shall abide at the same Labour, without being put to any Mystery or Handicraft...." Quoted in Coulton, Medieval Panorama, 81-82.

¹³ Thomas Tusser, 1557 Floruit, His Good Points of Husbandry, collated and edited by Dorothy Hartley (London, 1931), 181.

On enclosed land farming techniques could be better adjusted to the idiosyncracies of particular fields and seasons. Thus, enclosure permitted cross cultivation and gave greater rotational freedom.

At the same time more and better land was coming under the plow as more lowland forests were cleared. Farms were becoming larger, less fragmented, and more labor saving. For instance, in 1595, a 40-acre farm in the Manor of Hooton Pagnell, Yorkshire, and then occupied by one Thomas Ingland, had doubled in size since 1297.14 But in three hundred years the average size of its parcels or strips had only increased from fourfifths of an acre to one acre, and the farm was still wholly unenclosed. However, by 1753, the farm had again doubled in size and was half enclosed whilst the average area of the parcels of the unenclosed half had increased to 21 acres. By 1794 (after the agricultural revolution) the farm had grown to 1621 acres (i.e., it was eight times larger than it had been five hundred years before) and was entirely enclosed; the fields then averaged about 9 acres—as in fact they still did in 1931.15

Thus, in the four centuries following the Black Death, agriculture grew in size and efficiency, and a freer and more flexible but less stable social structure evolved. The ashes of feudalism were waiting to fertilize the new crops and the new ideas of the closely linked agricultural and industrial revolutions of the eighteenth century.

Turnips and Clover. Turnips and clover were the agronomic catalysts of the famous Norfolk four-course rotation of turnips (for feed), barley or oats (for brewing or livestock), clover and grass ley (for livestock), and wheat (for bread). Turnips (a hoe-cleaned row crop which obviated a year's fallow and provided winter feed for livestock) and clovers (which, with suitable improved grasses, made better pastures and hay and raised soil fertility) could not be fitted into the rigid three-course rotation of the open fields. Indeed, if they had been, they would have been eaten, after the grain harvest, by the communally grazed

¹⁴ This was the year when Sir Geoffrey Luterel became lord of this particular manor. He was the patron of the Luterel Psalter (c. 1340) which has delightful illustrations of medieval farming. See Arthur G. Ruston and Denis Whitney, Hooton Pagnell: The Agricultural Evolution of a Yorkshire Village (London, 1934), 240, and the illustrations on 241 and 244.

15 Ibid., 127.

livestock. Yet they were essential both to increase grain yields and for year-round livestock feeding. Further, selection and sexual segregation, which are the first essentials of livestock improvement, were inconsistent with communal grazing, whilst the open-field system was illadapted to the drill, the horse hoe and other new machines which inventors like Jethro Tull (the father of farm mechanization) and the new manufacturing industries in the towns were making available.

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These unleashed technical potentialities; the obvious technical and time-consuming handicaps of the open fields; the growth of roads and country banks; the increase of urban wealth (which sought the prestige and power which flowed from landownership); and the fashionable eighteenth-century passion of the landed aristocracy for farming "improvements"—all provided the impetus which, in the hundred years preceding 1875, completed the deforestation and enclosure movements and revolutionized our crop and livestock husbandry.

Aided by their great political power, by the Napoleonic wars, and by the Corn Laws, the landed aristocracy grew richer, despotically insisted on restrictive cropping covenants designed to maintain the fertility of the soil, administered harsh game laws, forced up rents, and in 1813 abolished the ineffective but symbolic minimum wage legislation which had persisted since Elizabethan days.

Thus, though (in this golden age of British agriculture) the yeoman tenants shared much of the landlord's freedom, progress, and security, they were often rack-rented and forced to follow unduly rigid conservation practices. It was, moreover, a bad time for the landless laborer whose wages were inadequate and who, like his fellow in the towns, was only slowly winning social and economic justice. With this exception, however, it was a time of prosperity for those who lived by and from the land.

Opening of the American Prairies. About 1875 the bubble burst. The indigenous accumulated fertility of the American prairies flowed into Britain in the form of low-priced wheat; the first cargoes of frozen meat arrived from the antipodes; the full tide of free trade swamped a now unprotected and "highly" farmed British agriculture. These events, and a series of Agricultural Holdings Acts, deprived the landlords of their rural power and strengthened the position of the yeoman tenant who, however, shared much of the economic dis-

tress of the landlord as millions of acres of our arable crop land tumbled down to labor-saving but low-output grassland. Agricultural laborers also became "forgotten men," and many of them sought urban employment or emigrated.

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nto rst es; rore. ngs ver int lisRevival dawned with the twentieth century. To satisfy the demand which sprang from the increasing urban standards of living, our farmers cashed in on the fertility of the prairies and pampas. They imported feed grains and oilcakes to supplement home-grown grass and iorage crops, in the making of animal products. Farming efficiency began to rise rapidly as new machines, fertilizers, and other fruits of science and invention reached the farmer, so that today British output per man and per acre is at least as high as that of any comparable region in the world.

We cannot, in fact, afford bad farming. A democratic country of forty-seven million people, which is as small in area and as short of foreign exchange as we are and which has been nearly starved out during each of the two world wars of the last thirty years, cannot permit the luxury of idle or ill-used acres.

The British farmer enjoys, today, almost complete security of tenure and nearly complete freedom of cropping and also the security of guaranteed prices and markets for his produce. In return, the consumers (who comprise 90 percent of our population) and their Government expect him to do his duty by farming well or, if not, to hand over his farm to someone who will.

Our national heritage enshrines personal liberty. But today it also embraces planning for social justice and for national survival. We have, therefore, some limitations on agricultural liberty which (though essential for and acceptable to us) may well be neither economically nor socially desirable in countries of more abundant natural and financial resources. Although we are blessed by freedom from soil erosion, we realize that our only immortal asset is the land. We know that to preserve it we must, as a nation (to paraphrase

an Old Country proverb) farm as though we had to farm forever even though, as individuals, we ought to live as though we were to die tomorrow.

Our farmers, who are, in general, firm supporters of the nation's agricultural policy, have learnt, down the years, the truth of this proverb. They, too, know that we have no land to spare for bad farming. Today, therefore, technical leadership, and if necessary operational control, comes not from the landlord, but from the nonpolitical County Agricultural Executive Committees on which sit representatives of landlords, of tenant and owning farmers and of agricultural workers. The latter, by the way, are once again protected by minimum wages and, in addition to participating in our wide national range of social security schemes, now "take home" nearly as much pay as the townsman.

Conclusion. In this brief survey, we have seen how a primitive agriculture has felt its way forward like an aggressive amoeba until it has become one of the world's most mechanized and productive farming systems. We have seen the rigid stability of the manorial age evolve, after many ups and downs, into a system of stabilized markets and secure tenancies within the framework of which the good husbandman can freely exploit his talents. We have seen the unfree feudal peasant emerge either as the free but self-disciplined yeoman tenant or owning farmer or, after many vicissitudes, as the free hired man enjoying reasonable wages and social security. We have seen the rural power of the feudal baronage pass to democratic county committees which administer self-discipline to our farming industry. We have watched, over ten centuries, the somewhat checkered but simultaneous growth of liberty, progress, and security in British agriculture. At the outset I asked the question: Does British agricultural history suggest that Liberty, Progress, and Security can grow simultaneously and live together in harmony? My necessarily cursory study justifies, in my view, an affirmative answer.

JOHN DYER, THE POET, AS FARMER

EDWARD A. PARKER

Haileybury College, Hertford, England AND RALPH M. WILLIAMS

Trinity College, Hartford, Connecticut

Among the recently discovered notebooks of the poet John Dyer (1699-1757) are his accounts for his first year as a farmer (1734), miscellaneous notes on farming, and his own farmer's calendar. In some places these records are incomplete, but they do nonetheless give an interesting and detailed picture of a practical farmer's activities in western England a year after the publication of Jethro Tull's Horse-Hoing Husbandry, a landmark in English agricultural history. And as Dyer was apparently dependent, during that first year, on his neighbors for advice, his notes probably reflect the current practice in his locality and provide, as one historian suggests concerning such records,1 more direct evidence for the writing of agricultural history than would the printed textbooks, calendars, and periodicals of the same time.

The years 1730-1734 Dyer, who was an artist as well as poet, spent as an itinerant painter in Wales and western England. He was also keeping a watchful eye on the property in Herefordshire which he was to inherit from his mother's family and which was then under the management of his maiden and unbusinesslike aunt, Elizabeth Cocks. The most important part of this property was a farm called Mapleton, in the township of Norton and parish of Bromyard. In the spring of 1734 Dyer found the work at Mapleton was so far behind the season that he settled down there to manage the farm himself.

Mapleton itself provides a nice example of the evolution of farm land in Herefordshire from the open-field system to small enclosures and ultimately to large farms.² Early in the seventeenth century it consisted of two crofts, called Upper and Lower Mapleton, belonging to the Bennet and

Cocks families. When John Cocks and Elizabeth Bennet (Dyer's maternal grandparents) were married, the two small farms became one larger one, although it was still what would be called a "small holding" in Herefordshire.3 That this land had all been open field at one time, but enclosed at an early date, is suggested, we think by the fact that in Dyer's time there was still some common-field land attached to Mapleton, for Dyer recorded in his notebook an expenditure of 2 shillings (payment for three days of work) for "mending gaps at different times and tining at the common-field." By the time the Tythe Map of 1838 was prepared, Mapleton had been incorporated into a still larger farm known as New Barns and by 1882 into the Buckenhill Estate.4

Determining the exact size of Mapleton in Dyer's time is complicated by its incorporation into larger farms and by the inevitable change in the use of the various fields. Fortunately, however, the Tythe Map of 1838 and the records of the sale of the Buckenhill Estate in 1882 use the same numbering of lots, and from these two sources we can piece together an estimate of what the area of Mapleton must have been:

266 Monleton Field	acres	roods	perch
266 Mapleton Field Arable	. 12	2	17
286 Mapleton Close			
267 Mapleton Barns and Fold	. 0	0	35
281 Mapleton Big Meadow	. 12	3	27
319 Lower Orchard			
320 Dyer's Bank Pasture	. 19	1	24
321 Lower Meadow			
	45	0	235

G. E. Fussell, "Studies in Bibliography; VI, Agriculture from the Restoration to Anne," Economic Willia History Review, 9:71 (November 1938).

² For a good account of this development, see Howard Levi Gray, English Field Systems (Cambridge, Mass., 1915), 64-66, 139-153.

³ The unpublished manuscript, Some Notice of the Fore-Elders of the Rev. John Dyer, by the antiquarian, William Hylton Dyer Longstaffe, the poet's greatgreat-grandson, now in the possession of Longstaffe's grandson, Ronald Hylton Smith, of Cottingham, Yorks.

⁴ John Duncumb, General View of the Agriculture of the County of Hereford (London, 1805), 33. "Of late

Today these lots lie on the side of a hill gently rising from a small brook. In the rough draft of a letter to his aunt, Dyer mentioned three copyhold pieces, in addition to the house and barns, "this side of" the brook. They are, apparently, the property listed above. Elsewhere he referred to two meadows "beyond the brook," which one man took two and a half days to mow (by hand, of course). A "day's math," or the amount usually mown by a man in one day, was about a statute acre, so that these two lots did not amount to much more than 21 acres,6 raising the total acreage at Mapleton to approximately 48 acres, not including the common field, which was probably small. The two barns, and the foldyard of which they form two sides, are about half way up the hill. Near the foldyard can be seen the depressions where the foundation stones of the house rested; the house itself is no longer standing. Extending from the back of the barns to the top of the hill is the field called Dyer's Bank for the poet, which certainly identifies this farm as the one with which Dyer was concerned in his notebooks,7 and which probably received its name from his fondness for the view from it, an extensive prospect of slightly rolling farm land which is still attractive.

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A sketch of Mapleton in Dyer's notebook indicates the variety of uses to which this small farm was put. Dyer's Bank, today entirely pasture, had in Dyer's time two orchards (one clearly the

years, the practice of consolidating several estates in one, has much reduced the number of small farms [in Herefordshire]."

⁶ The Tythe Map of 1838 is now in the Cathedral at Hereford. We are indebted to F. R. James, Esq., registrar of the Diocese of Hereford, for showing us this map. The records of the sale of the Buckenhill Estate in 1882 were communicated to us by J. D. Barrs, Esq., a well-known antiquarian of Bromyard, to whom we are indebted for other favors also. Lot 281 is not listed in the Buckenhill Sale, and the Tythe Map does not give the area of individual lots, so that the size given here is that of the most likely field on the modern Ordnance Map (12.92 acres). New Barns is given a total acreage of 177 acres in the Tythe Map; the Buckenhill Sale involved 887 acres.

⁶ Duncumb, *Hereford*, 160 (misnumbered 150). The Ordnance Map shows a field of 2.864 acres across the brook from the main part of Mapleton.

⁷ There is a Mapleton also in the parish of Colwall, Herefordshire, $3\frac{1}{2}$ miles northeast of Ledbury. See Royal Commission on Historical Monuments, An Inventory of the Historical Monuments in Herefordshire (1932), 2:55a.

"lower orchard" of the Buckenhill sale), a hopyard, traces of which may still be seen near the barns, and meadows as well as pasture land. Below the barns were two meadows, one of which Dyer called the "hopyard meadow" because it separated the upper from the lower hopyard. Also below the barns were most of Dyer's arable fields.

Dyer's notes further indicate how this land was used. They state definitely that he had 9 acres in wheat.8 Later he recorded getting in 9 large loads of oats "exclusive of the 3 acres and 3 by H. ford house [possibly his share of the common field]" from which he harvested 2 loads. Elsewhere, however, he reported getting in 10 loads of oats, so he apparently considered the 7 large ones as the equivalent of 8 normal ones, or 4 times the amount of the 2 from the smaller field. Assuming that all fields bore equally well, we can estimate that he had about 15 acres in oats. He also noted that he took 8 loads of hay from the 2 meadows beyond the brook. As these fields totaled, as we have seen, about 21 acres, and as Dyer took in 23 loads of hay all told, he must have had about 71 acres of meadow. His two hopyards, as we shall see, could not have amounted to more than 2 acres together. He also mentioned harvesting a load of peas from which he secured 7 bushels. This crop could not have taken up much space-probably only half an acre.9 These crops, then, took up roughly 34 acres, leaving, if our estimate of the size of the farm is accurate, only 14 acres for his two orchards, which must have been small, land lying fallow, pasture land enough for 16 oxen. cows, and horses of various sorts, and land for growing enough fodder (he mentioned cabbage, turnips, and carrots in addition to hay and pea vines) for these same animals for the winter months.10

This distribution of his crops suggests that Dyer was using some system approaching the four-

⁸ This actually does not mean much because of the variety of meanings of the word "acre." Our estimate of the size of Mapleton is in statute acres; Dyer, however, may have been referring to "customary" acres, which are two-thirds of statute acres. See Duncumb, Hereford, 159.

⁹ Ibid., 51, says that peas usually produced 12 to 14 bushels per acre.

¹⁰ Dyer, who kept a heifer belonging to his helper More, recorded that the animal was on fodder from Nov. 19 to Jan. 20 and at grass the rest of the time. Oxen, however, he noted, should not be put out to grass until May.

field rotation recommended by Edward Laurence: wheat, peas or beans, oats, and the summer fallow, 11 with clover or other grasses substituted for most of the peas and beans. Certainly his records show a greater variety of crops than was customary under the old three-field system.

Some of Dyer's crops which were not a part of this rotation, however, were the most important. Duncumb wrote that "Hops at present occupy the best ground the farmer has to give them; they take his best manure; they are too often the principal objects of his attention."12 These remarks, especially the last, are true of Dyer and Mapleton; in spite of the small proportion of land devoted to them, the hopyards took up a large share of the time of Dyer and his assistants, and a majority of the entries in Dyer's notebook. As a hopyard did not begin to bear a crop until the second or third year, and as the expense of setting one up was rather large, people were generally cautious about starting one, so that at this time hops were not a drug on the market, and a mature hopyard was a very lucrative piece of land. Richard Bradley, a professor of botany at the University of Cambridge in the eighteenth century, said that an acre in a hopyard was worth £40, £50, or even more per year,13 while the Dublin Society, trying to encourage the development of hop plantations in Ireland, estimated that, in an average year when hops were plentiful, an acre would clear £15, but when many hopyards failed, those that did produce good crops returned their owners well over £100 per acre.14

As these two books point out, however, the vines of the hop are very tender, especially the buds and early sprouts, so that they require very close attention; if proper care is not taken of the hopyard, it will show a loss rather than a profit at the end of the season. And as the hop vine is easily bruised and destroyed by a strong wind, or rotted by too damp soil, great care must be taken in selecting a site for a hopyard. In general, rather rolling country (such as that around Bromyard) is to be preferred, so that the force of the wind may be broken by the hills and good drainage afforded for the rain. The Dublin Society suggested having two hopyards, an upper and a lower one (as

Dyer did), so that in a wet season, when a lower situation might cause the crop to fail, the higher location would thrive, and in a windy summer, when the upper yard might be destroyed, the well-protected garden in the valley would prosper. Dyer also had a further protection for his gardens in hedges planted on at least three sides of the yards. The south side was frequently left open to allow an easier access to the sunshine and "circumambient" air, both of which are not only necessary to the life of the hop but help evaporate heavy dews as well. 16

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The hops were planted in hills, 4 or 5 roots to a hill, with from 700 to 900 hills in an acre, depending on the distance between them and whether they were arranged in squares, checkerboard fashion, or in the diamond shape of the quincunx. Generally the hills were placed 8 or 9 feet apart and in the quincunx plan.17 In Herefordshire, however, it was apparently customary, in Dyer's day as well as in Duncumb's, to call a "hop acre" the area taken up by 1,000 hills of hops-roughly half a statute acre.18 Dyer noted that his upper yard had 900 "tumps" or hills. As there were usually 2 poles to every hill,19 Dyer probably had approximately 1,800 poles for this yard. He recorded in one place having "about 6000 poles" and in another place noted that he had 4,500 old ones and 1,800 new ones in 1734, so that we may assume that his lower hopyard was a little over twice the size of the upper.20 The total land thus devoted to hops, then, was not over 2 statute acres.

When Dyer arrived at Mapleton on April 23, 1734, the hopyard and parts of the rest of the farm were badly behind the season. Bradley said that one man could keep 2,000 hills of hops and still reserve his winter's labor for other purposes, 21 and we have seen that Dyer's hopyards together contained about 3,000 hills only. And Dyer himself recorded that a neighbor, a Mr. Emmes, assured

¹¹ Edward Laurence, The Duty of a Steward to His Lord (London, 1727), 180.

¹² Duncumb, Hereford, 93.

¹³ Richard Bradley, The Riches of a Hop-Garden Explain'd (London, 1729), 5-6, 24.

¹⁴ Dublin Society, Instructions for Planting and Managing Hops (Dublin, 1733), 7.

¹⁵ Ibid , 18-19.

¹⁶ Ibid., 20-21; Bradley, Riches, 20, 62.

¹⁷ Bradley, Riches, 22, 46; Dublin Society, Instructions, 26.

¹⁸ Duncumb, Hereford, 65, 159.

¹⁹ Ibid., 65. Bradley (p. 57) and the Dublin Society (p. 37) say 3 or 4 poles to a hill. Herefordshire practice seems to have differed from theirs in having fewer plants and poles to a hill, and the hills closer together.

²⁰ Dyer's sketch of Mapleton in his notebook suggests a proportion of 5 to 2, indicating that Dyer's practice was closer to what Duncumb recorded than to Bradley and the Dublin Society.

²¹ Bradley, Riches, 22.

him that two workmen, two women, a plowman, and a boy were all the help needed for the entire farm of Mapleton. Yet in the week of May 6, when Dyer first began to list the men working for him, there were four or five men in the hopyard every day, apparently in a desperate effort to do all the necessary labor before the season became too advanced. Dyer had his three regular hired men-referred to as More, old Rogers, and his son Thomas Rogers in Dyer's notebook-working every day. But in addition three extra men were called in to help with the hops at this time. They are called "Prichard, Dekins, and another" in Dyer's notebook, and practically disappear after this first week. Prichard was probably a neighboring farmer whom Dyer called in to supervise the work at first (and tell him something about managing a hopyard), for in July Dyer paid him the poor's rate of 20 shillings which had been assessed on June 16. Dekins worked in the hopyard again on July 30, while the other man, whose name even Dyer did not know, apparently did not

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In his notebook Dyer wrote of the hepyard: "About the middle of March, a little before the shoots appear above ground, they kerf down the tumps and lay the roots open, or rather the stock and the fibrous upper part of the roots. After they lie open a few days, they cut off with a large crooked knife all the tender shoots and generally the last year's roots, or whatever grows knobby and too high above the surface of the ground. Then they cover them with a little heap of fine earth."22 The west-English word "kerf," a cognate of "carve" meaning "to cut," is a term which Dyer used for both this early thinning out of the roots and the later stripping of the leaves from the lower part of the vines. Prichard, Dekins, and the third man were paid for "kerfing and tumping the hopyard"; it seems incredible that they were doing this very first work on the hopyard, but the later "kerfing and tumping" (the hills were built up gradually to avoid bruising the roots)23 was generally entrusted to women. Bradley noted, however, that this thinning may be done at any time until the vines begin to sprout leaves-usually not until they are 8 inches high, or about the time at which the poles are put up-24 so that Dyer

could have been, and probably was, doing this work at the very last moment possible.

During the second week of Dyer's records, the week of May 13, More, Rogers, and his son worked quite consistently in the hopyard, and on May 20 Dyer wrote in his notebook that More and the elder Rogers had "finished hopyard," by which statement he meant only that the hops were at last in good order and not behind the season, for two days later they were working in the hopyard again, and they worked there on May 27 and 28 also. By the end of May they should have completed the dressing of the hopyard, including the erecting of the poles and the tying of the vines.25 Dyer wrote, as information received from a neighbor, W. Tarbox: "Price for dressing hopyards is according to the strength of the land. The lowest price I give is 17s. and the highest 18s. per acre, and I tie them myself, which is worth 2s. per acre more. N.B. Mr. Floyer for his rank hopyard pays but 18s. per acre including tying, and his poles are very large." It seems likely that Dyer too, as he learned how, also assisted in tying the vines.

The end of May or the beginning of June was, Dyer noted further, "commonly the season for hoeing the hopyard, trenching, paring, kerfing." Weeding went on all the time, of course, either by hoeing or by paring, that is, by plowing in the alleys with a small and shallow plow and thus not only destroying the weeds but turning up good earth for the hills as well. Towards the end of May Dyer recorded paying 3s. 6d. to Anne Madox and "Goody" Rogers "for weeding before the tumps." Anne Madox was the wife of James Madox, who occasionally worked for Dyer also; she was generally referred to in Dyer's accounts as "Madox wife" or even as "Mado. w."

At this time also, Dyer learned, the "hopyard tumps should be reviewed and poles added to the late wiers where they become vigorous—often too the season of kerfing and of heaping manure along the sides of the hopyard against the season of carrying the dung on and spreading it." And he noted as well the payment of 1s. 4d. "for two days work about tining in the hopyard," that is, for repairing the hedge around the yard.

Another activity which was behind schedule in May was the plowing of the fallow land. Dyer used a system of "trifallowing," the first plowing coming in January, the second and third in May, with the manure being spread before the third.

²⁵ Ibid., 57-68, 77-78; Dublin Society, Instructions, 36-40.

²² Cf. *ibid.*, 35-37; Dublin Society, *Instructions*, 34-35.

²³ Bradley, Riches, 52, 82-83; Dublin Society, Instructions, 35, 42.

²¹ Bradley, Riches, 38.

Mapleton was progressive enough to have an iron plow instead of the usual wooden one, but when Dyer arrived the iron work was broken. It not only cost him 17s. 1d. to have it repaired, but it also delayed his plowing until the end of May and early June. He even had to bring in "a couple of the plough fellows" during the week of May 20 to help out, perhaps because they had a plow. The following two weeks, however, Thomas Rogers was plowing almost every day.

The most tantalizing entry for the month of May in Dyer's notebook is the record of his buying 5 pounds of clover seed—his only reference to this grass. This would be enough for about half an acre, sown by hand, as it probably was.²⁶ Was Dyer planning to experiment on a small scale with a new crop, or did he intend to sow again in spots where an earlier sowing had come up thinly? In either case, Dyer probably bought the seed at the suggestion of a neighbor, an indication that other farmers in the neighborhood also were planting clover. Although clover had been successfully introduced into Herefordshire some sixty years earlier,²⁷ it was still in 1734 a sign of progress for a farmer to be using it.

Dyer's other crops received little attention in his notebooks but seem to have been in good order at this time. The women were weeding the grain, a process which he noted could be continued through the beginning of June. And his orchards either had been pruned in January as he noted they should be, or it was too late in the season to do so then, for the only work in them which he recorded was cleaning them, that is, clearing them of all growth except the trees themselves.²⁸

The livestock presented at least one problem when Dyer arrived. His pigsty was in need of repairs, and he had to buy 154 hog staves and 24 pieces of heading, which cost him £2 1s. During May he sold 2 barren cows for £2 5s. and £3 respectively, and a heifer for £5, leaving him with 5 oxen, 3 cows, 2 2-year olds, 2 calves, a bull, a bull calf, and an old bay mare. He probably put his oxen out to grass for the first time this month, for

²⁶ Laurence, The Duty of a Steward to His Lord, 194; Jethro Tull, The Horse-Hoing Husbandry (London, 1733), vii; John Mortimer, The Whole Art of Husbandry (London, 1707), 28.

²⁷ Andrew Yarranton, England's Improvement by Sea and Land (London, 1677), 156. M. E. Seebohm, The Evolution of the English Farm (Cambridge, Mass., 1927), 313, states that clover "was far from being universally grown" in the eighteenth century.

28 Mortimer, The Whole Art of Husbandry, 524.

he noted: "The year should be pretty forward before oxen are turned to grass—sometime in May."

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According to the chart which Dyer kept to show what men worked for him each day, his men put in 72 days of labor between May 6 and the end of the month, not including what Dyer did himself. Old Rogers, Thomas Rogers, and More accounted for 61 of these days, "Prichard, Dekins and another" for 8, and "the plough fellows" for 3. Dyer did not include the women in his chart until July. but we can estimate how much they worked for him from his payments to them. As Dyer's wages were regularly 4 pence a day for the women, and as he paid them 12s. 8d. in May, they must have worked at least 38 days. Dyer's entries in his notebook for payments to labor are somewhat scattered, however, and do not always correspond to what they should for the total days of work recorded in his charts.

In general Dyer paid his men 8 pence, liquor, and 2 dinners for a day's work,29 but for labor that was unusually heavy or required considerable responsibility he paid more. Prichard, the neighboring farmer who came in to supervise the first week in May, received 1s, 3d, for his very responsible work. or 5s. for the four days he came. Later in the summer More received a shilling a day for drying hops, a responsible job. What constituted heavy work is not always clear. Mowing a meadow was worth the shilling wage, but mowing along the highways was not; plowing earned only 8 pence a day; harvesting grain, some of which was probably cut with a sickle, paid a shilling; most of the work in and around the hopyard was rewarded with only 8 pence. The boy who did weeding for Dyer during the summer, and the young girls who helped with the hop plucking were paid 3 pence daily.

During June the work at Mapleton was the least demanding of any time in the summer. Monday the 3rd was a fair day, and Tuesday the 4th a holy day, when no one worked. Thomas Rogers was the only man who appeared at Mapleton regularly. He finished plowing the fallow land, mended fences, and supplied what poles were wanting in the hopyard. Old Rogers and More

²⁹ Cf. Duncumb, *Hereford*, 136. The dinners probably account for Dyer's purchases of meat and wheat being entered with his payments for labor. The liquor was probably cider made from his own apples.

³⁰ Bromyard Fair was held five times a year (Duncumb, *Hereford*, 146), one of them being Whit-Monday, which fell on June 3 in 1734. We do not know what holy day was being celebrated on June 4.

worked occasionally in the hopyard, but most of the work there consisted of weeding which was entrusted to the women, Mrs. Rogers and Anne Madox, and a boy. If these six people are regarded as the normal staff of which the Mr. Emmes spoke to Dyer, then the only extra laborers at Mapleton during June were some hewers, who were perhaps supplying new poles for the hopyard, and "the fellows who got up the heifer from the brook" when that little accident occurred. Dyer also noted that June is "the best season for washing and shearing sheep," but as he made no payments for such work, which was generally entrusted to women,31 he may not have had any sheep in 1734. And land which is to be "twyfallowed,"32 that is, let lie fallow for a second summer, should now be plowed, and "manure to be carried to the land and all proper carriages to be performed before the teams are busy at harvest."

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By the latter part of the month the affairs of the farm seem to have been progressing so smoothly that Dyer considered it safe to be absent for a few days, and so he left Mapleton about Wednesday the 19th and did not return until some time around the 29th. Consequently his charts of the men who worked for him are incomplete, but the payments he made indicate that the men had worked 29 days, the women and boy 27 at least during June.

During July the work became somewhat heavier. The haying, which had been started by Thomas Rogers while Dyer was away at the end of June, was continued by Young Rogers and one Hinton, probably William Hinton, the only man of that family name to appear in the Bromyard parish registers between 1720 and 1742. The weeding also continued, and one or two of the women were present almost every weekday in the month, and occasionally even a third, referred to as Clark's wife, was added. In the hopyards there was hoeing to be done, the hills still to be built up, and a close watch kept to see that the vines did not become entangled with one another-enough to keep a man busy most of the time until the harvest, according to Bradley.33 During the month there was also a high wind which did enough damage to the hopyard to keep More busy a day in remedying it. And Dyer got around to some repair work on the buildings this month, paying a carpenter named Davis £3 4s. 2d. and some masons 6s. 4d.

for their work.³⁴ Dyer also reminded himself to "sow turnip seed in this month and sell such lambs as you have fed for the butcher"—when he had any. At all these miscellaneous jobs, his men worked at least 71 days this month, the women 75, and the boy 16.

August and September were the busy months at Mapleton. Dyers lists of his workers for the weeks of August 5 and 12 are missing, but during this time they apparently harvested the oats. As this grain does not become too easily detached from the straw,35 it was frequently harvested more like hay than wheat, being mowed with a scythe and transported loose to the place of threshing.36 That this method was employed by Dyer is suggested by his reckoning his crop in terms of loads rather than thraves, as he did his wheat which was bound into sheaves. He mentioned only 504 bushels of oats when threshed, a very small yield for 15 acres even in those days, but he may, of course, have harvested more than he mentioned in his notebook, or sown clover with it, as was sometimes done.37 He sold 34 bushels to a Mr. Freeman, one to his helper James Madox, and the rest he apparently kept for himself, perhaps for seed, for he noted that in August he should "provide good seed and well picked against seed time." He also noted that this is the time to "put your ewes and cows you like not to fatting." From the records of his payments to them, we can be sure that the women worked at these various jobs a total of at least 17 days and the men 27 before the hop plucking began at the end of the month.

Once the oats were threshed, there was hardly a breathing spell before Tuesday, August 27, when the hop plucking began. In harvesting the hops the vines are cut off close to the top of the hill, pulled from the poles, and brought to some central point where the pods are plucked from the vines and put on a large piece of sackcloth, generally supported by a wooden frame or crib. When this cloth is full, the hops are taken away in it, either directly to the kiln, or to some clean and cool place where they may be kept until drying. As hops should never be plucked when wet, either from rain or dew, and as they must be taken from the

³⁴ The masonry could not have been very extensive, for Dyer noted that the charge in London for building a "brick and a half wall" was 3s. 4d. per square yard, or 1s. for the labor alone.

³⁵ Mortimer, The Whole Art of Husbandry, 104.

³⁶ Gervase Markham, The English Husbandman (London, 1635), 115-116.

³⁷ Laurence, The Duty of a Steward to His Lord, 194.

³¹ Duncumb, Hereford, 127.

²² The Shorter Oxford English Dictionary gives 1733 as the date for the last recorded use of this word.

³³ Bradley, Riches, 81.

vines within an hour after being cut from the hill, all hands available have to be used in the harvest, that as much may be done in as short a space of time as is possible.³⁸

Soon after the hops are plucked they should be brought to the kiln and dried. Bradley suggested using the old and broken poles for fuel, but as smoke spoils the hops if it seeps through, only charcoal should be used. Once the hops were dried, they were allowed to cool and were then packed in bags about 11½ feet long containing approximately 200 pounds of hops, or in half bags, known as pockets, which contained roughly a hundredweight.³⁹

Before he could have his staff begin the hop plucking, Dyer had to buy a new crib cloth, which cost him 13s. 71d., and charcoal costing £1 6d. (18 shillings of which he did not pay until May 13, 1737 for some reason). When they began work, old Rogers took down the poles after the vines had been stripped from them; Thomas Rogers, James Madox, and, for the eight days which he worked, "Hugh the Welch fellow" carried the vines to the crib and disposed of them after the pods had been removed from them by the women, Goody Rogers, Anne Madox, and Goody Newton and her daughters (aged 7 and 5). More did the drying. And occasionally there was a little extra help. Clark's wife worked part of one day, J. Davies the maltster and his son came for two days, apparently to brew Dyer's beer and ale for him, and on the last two days four gypsies, three men and a girl called Molly, also came to assist.

Because the hops could not be plucked when wet, the working day of Dyer's help was shortened. At least some such explanation is necessary for the 20 days it took Dyer's nine regular assistants and a few extras to complete the harvest of hops from less than 2 acres—August 27 through September 18, excepting Sundays. Dyer began to dry the hops almost as soon as they were picked (it is significant that More worked every day but one), and as it took a whole day to dry them, he may have had his workers pick each day only as much as could be dried the next.

The week after the hop plucking was finished, another harvest began at Mapleton, the reaping and threshing of wheat. This part of the work was much less strenuous and was done by only four workers, the three members of the Rogers family and Anne Madox, and was over by October 8 when

old Rogers was "thrashing the tail ends." Unlike oats, wheat was generally cut with a sickle and then bound into sheaves. Dyer's crop this year was rather small for his 9 acres, amounting to only 45 thraves, a thrave being 24 sheaves. When threshed this came to 68 bushels, from which Dyer anticipated a return of about £10 excluding some return on the straw. He sold 22 bushels to Mr. Freeman, one each to old Rogers and Thomas Rogers, and 28 to some unnamed person (perhaps his aunt), at 3s. 10d. per bushel. The rest he may have used for seed.

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Between the beginning of the hop plucking and the end of September, Dyer's men worked at least 106 days, the women 62 or more, and the children a minimum of 51. Although his daily charts of workers are extant for this period, Dyer apparently did not record every worker in his lists, for some appear in his list of payments who are not in the charts.

With the harvesting of the wheat the busy season came to an end, and the rest of the autumn was spent in odd jobs and in putting everything in order for the winter. He noted as jobs for September: "Sow wheat in the dark, rye in the daytime. Mend the fences about the new sown corn. Put boars up in the sty. Gather mast and put swine into the woods. Saw timber and boards. Manure wheat lands before the plough[ing]." He quoted Varro that "Pellitory of the wall scattered on heaps of corn will drive away weevils from it" and added, "They say it has been tried with success." And he was making cider and perry from his fruit, for in September he sold a Mr. Wood 4 shillings' worth of perry, and he had made several notes on the pressing and brewing of cider.

In October Dyer paid the half-yearly land tax and tax on windows, amounting to £1 9s. 8d., which fell due at Michaelmas. Later in the same month, he had Thomas Rogers cutting wood for him, either for new poles for the hopyard or for barrels for his cider. 41 Dyer kept his charts of workers through the week of October 21 as usual and then recorded only the occasional days when

⁴⁰ Duncumb, Hereford, 64. Duncumb also noted that this work was usually done by Welshmen, but Dyer apparently depended on his regular workers instead.

⁴¹ Dyer noted: "Hewers of vessel timber have somewhat more or less according to the year of fruit—for staves 2s.—2s. 4d.—2s. 6d. a hundred, for heading 4d.—5d.—&c. a dozen. 6 heads make their dozen—3 pieces in a head—formerly there were but two."

Bradley, Riches, 87-89.

^{*} Ibid., 94-95, 99-100.

he had help. By November 18 everything seems to have been done, for on that day he paid off the Rogers family (the only payments he recorded after September, although he must have made others).

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There were other activities going on at Mapleton during the summer which received little or no attention in Dyer's notes. He mentioned having a crop of 7 bushels of peas, 4 of which he sold to his aunt, and he may have raised some turnips, cabbage, and carrots (which were then used mainly as fodder for cattle), for he made a note that January was the proper month for planting these vegetables. More important, however, were the orchards. Herefordshire was famous for its orchards, and it is rather interesting that Dyer did not mention his oftener. John Beale, in praising the orchards of Herefordshire, said that even the barren soil about Bromyard produced excellent and savory apples, and recommended mixing pear trees with apples that the orchard might always be productive, for the apples produced rapidly at first, while the pears were slower, reaching their prime just as the apples began to degenerate.42 At Mapleton such a plan seems to have been followed, for there were both apple and pear trees in the orchards.

Although Dyer's records are obviously incomplete, we can make an estimate from them of what sort of farmer he was. As we might expect from his other economic interests and from his Herefordshire neighbors, he was a moderately progressive farmer. He was a liberal humanitarian mercantilist, ⁴³ and one of his unpublished prose works deals with the development of England's natural resources to a greater extent than they had been developed previously. Herefordshire had long been one of the most progressive of counties in its acceptance of new crops and new methods in agriculture, probably because it had early abandoned the open-field system. ⁴⁴ Hops had been introduced into England in 1524, and

into Herefordshire soon after. 45 John Beale, writing in 1656, boasted that Herefordshire orchards were a model for all England and pointed with pride to the rapid growth of hop raising around Bromyard. 46 The area around Ross, known as Urchinfield, was the first in England to accept clover generally. 47 And Herefordshire maintained that progressiveness during the eighteenth century, when a trend developed towards incorporating small units into larger ones, possible only with the improved farming methods of the Agricultural Revolution. At Mapleton the use of clover, a four-field rotation, and an iron plow are all symbols of this willingness of Dyer and his neighbors to consider new crops and new methods.

Although Dyer seems to have been moderately successful in his first year of farming,48 he apparently agreed with Beale that the soil around Bromyard was barren, and he found his aunt troublesome. As early as May 29 he wrote in his notebook, "I frequently wish I could abandon Mapleton with the fancied advantages of it, but the fear that by so doing my aunt will be involved with troubles confines me here," and then crossed it out. And his absence in June seems to have been in an attempt to find a tenant or even a purchaser for the farm. But he was in charge again in 1735, and he remained in close touch with Mapleton for two or three years more. With a year of experience behind him, however, he apparently felt that it was unnecessary to keep as detailed notes as he had during his first year.

Dyer's notes for 1734 make up one of the most interesting of his notebooks. It is unique among literary figures of his time, and, it seems to us, is an interesting addition to the materials on eight-eenth-century farming already published.

⁴⁵ Duncumb, *Hereford*, 65. Duncumb, however, is not always reliable for historical details.

⁴⁶ Beale, Herefordshire Orchards, 527.

⁴⁷ Yarranton, England's Improvement by Sea and Land, 156. However, Seebohm, The Evolution of the English Farm, 313, says that clover spread from East Anglia across England.

⁴⁸ Dyer's incomplete accounts record expenditures of £32 12s. 7d. Of this amount £8 15s. $4\frac{1}{2}d$. was for supplies and taxes and £23 17s. $2\frac{1}{2}d$. for labor and food for the laborers. His recorded receipts were £40 4s. 4d., the main items being £10 5s. for the cattle sold in May, and £19 16s. for 4 pockets of hops sold in September (2 at 4 guineas each, the other two for £11 8s. together). But both sides of his ledger are incomplete, so that this is merely an indication that he did not fare badly.

^a J[ohn] B[eale], Herefordshire Orchards, A Pattern for All England, reprinted as pages 499-535 of Richard Bradley's New Improvements of Planting and Gardening (ed. 6, 1731), 505, 526.

⁴³ W. S. Lewis and Ralph M. Williams, *Private Charity in England*, 1747-1757 (New Haven, Conn., 1938), 2, 6; Clark M. Emery, "The Poet and the Plough," *Agricultural History*, 16:9-15 (1942).

⁴⁴ Gray, English Field Systems, 154-155; Lord Ernle, English Farming, Past and Present (ed. 5, London, 1936), 149.

PEHR KALM'S DESCRIPTION OF SPRUCE BEER

Translated and edited by ESTHER LOUISE LARSEN

Among the beverages used by Europeans in America there is one which is made from a species of spruce.¹ As noted in [Philip] Mill[er], Gard-[eners] Diction[ary (London, 1731)], spec[ies] 5, the botanists list it as Abies Piceae foliis brevibus conis minimis;² the English and Dutch call it spruce, and the French in Canada, épinette and épinette blanche.

This spruce, which is quite common in Canada, resembles our Swedish spruce so much that they might easily be mistaken for one another, were it not for the very small cones of the American spruce. It requires a cold climate, becomes quite rare in the English Provinces, and a little farther south almost entirely disappears. There, that is farther south, it is only found on the highest ridges and peaks of the so-called Blue Mountains,³ or on the north side of the same, where the snow lies longest in the spring and comes earliest in autumn. In Canada, it grows under exactly the same conditions as our Swedish spruce.

The French in Canada are the foremost brewers of this small beer. The Dutch, who live at Albany along the northern part of the Hudson River in the province of New York, also use it. Very few of the English outside of New England and Nova Scotia have the drink. This is the reason; the tree is common in Canada but so scarce near Albany that

¹ The article by Pehr Kalm which is here translated and edited by Mrs. Esther Larsen Doak appeared under the title, "Bescrifning på hvad sett dricka göres i Norra America af et slags gran," in the Kongl. Svenska Academien, Handlingar, 12:190–196 (1751). Literally translated, the title reads: Description of the way a kind of beer (or small beer) is made from spruce in North America. For other articles by Kalm which have been translated by Mrs. Doak, see Agricultural History, 17:172 (1943), 19:58, 254 (1945), and 21:75 (1947).—Everett E. Edwards.

2 Picea canadensis (Mill.) BSP.

³ Apparently Kalm used the term "Blue Mountains" for all the mountains in the eastern part of the present United States. "These mountains which the English call the Blue Mountains, are of considerable height and extend in one continuous chain from north to south, or from Canada to Carolina."—A. B. Benson, ed., The America of 1750; Peter Kalm's Travels in North America, 1:65 (New York, 1937).

it is necessary to go several furlongs to find it. In the English Colonies, except for those previously mentioned, spruce is very difficult to find. sid

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I did not have the opportunity to see how the Dutch make this small beer. I drank it often and found it very good. The description they gave me of their method of producing the drink is as follows.

If, for example, water to the amount of a firkin is used, it is poured into a copper kettle and set on the fire. About a stoup, or as much as can be held in the hollow of two hands, of spruce twigs, from the spruce already mentioned, is then thrown into the kettle. If the twigs are fresh, a smaller quantity is used for the flavor is stronger, but if the twigs are dry more is used. The spruce twigs are cut into pieces about as fine as those which we cut for scattering on our floors or even finer. However, this is not important. In localities where it is necessary to travel long distances to obtain the spruce, a great quantity is brought home at one time. The twigs which are not immediately used are kept in a cold place until another time. These twigs become so dry that the needles fall, but for want of fresh material the dry needles and branches are used.

After the quantity of spruce twigs mentioned above has been added to the water in the kettle, the mixture is allowed to cook for about an hour before it is removed from the fire. The liquid is then poured into a vessel and allowed to stand until luke warm. Yeast is added, and fermentation occurs. A skålpund of sugar is added to the brew to remove the resinous flavor.⁴

In order to preserve the brew when fermentation has ceased, it is put into casks, firkins, or better yet into bottles.

This drink keeps for a long time and is generally said to have the advantage of not souring as fast in summer as other drinks. It is of a clear brown color similar to near beer and has a good flavor. It tastes the least bit of turpentine and resin; however, this flavor is scarcely noticeable. When first poured from a bottle into a glass, it foams and bubbles a lot and is pleasant to drink. It is con-

⁴ A skålpund or Swedish pound equals .937 pound avoirdupois.

sidered very healthful, and among other things, it is said to be diuretic.

This is the account which the Dutch gave me of the brewing of this drink which they call spruce heer.

While in Canada I had several opportunities to see how the French made their beer from spruce. It should be noted that in Canada, beer and other drinks brewed from malt are never used and rarely mentioned. Wine imported from France is extremely expensive and is only used by the wealthy. Even they use the spruce beer because it is very healthful and quenches the thirst. The spruce is brewed in the following manner.

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In order to brew enough small beer to fill one of our ordinary beer casks, a supply of spruce twigs is first obtained. The spruce twigs are brought home from the forest either at the time they are to be used or sometime before and stored in a cool place to prevent drying. The branches and needles of the current year are preferred for they make a better drink, and the resin in them is considered healthful. Two kettles of water are filled with branches and needles of the spruce mentioned above. The branches are not cut up as it is only essential that they be small enough to go into the kettle. Just enough water is put into the kettle to cover the spruce. The mixture is allowed to boil until only half of the water remains.

While the mixture is cooking a frying pan full of wheat is added. (It is said that rye can be used; barley is considered better than wheat or rye; and maize is by far the most desirable.) The grain, whether it be wheat, barley, or maize, is browned over the fire until almost black in the same fashion as we roast coffee. It must be stirred and turned many times. When the roasting is completed the grain is poured into the kettle and cooked with the spruce.

Several small loaves of bread made from wheat or other grain are put on the fire and allowed to become thoroughly scorched. They are then thrown into the kettle and cooked with the spruce and roasted grain. In order to brew two casks of small beer about two cups of roasted grain and ten small loaves of scorched bread are required.

The reasons for adding scorched bread and grain to the brew are as follows: first, to give a golden brown color to the beer which otherwise is not unlike water in color; second, to give the drink a pleasant taste; third, to make the drink more nourishing.

When the mixture has been allowed to cook until only half of the water remains and the bark of the twigs is beginning to loosen, the spruce twigs are taken out and thrown away. The liquid is then strained through a cloth into a tub in order to remove the remaining twigs, grain, and bread.

This process is repeated until enough liquid is obtained for several casks. Two or three stoups of syrup are added to the liquid, sometimes more, sometimes less. Thus the bitter taste which it has taken from the spruce twigs and resin is diminished, the flavor improved, and it is a delicious drink.

The wort is allowed to stand until cold, then either yeast or a piece of sourdough is added to the wort to cause fermentation. The scum and impurities which come to the top are skimmed off. When the fermentation is completed, the beer is put into barrels or filled into bottles which is even better. This briefly is the entire process.

The beer has all of the properties previously mentioned. In taste it vies with small beer. It is considered healthful. Most of the inhabitants, especially the French in Canada, have used the drink daily and find it does them a lot of good. Practically the only drink used by the officers and others at the forts is spruce beer.

Inasmuch as there is such a great similarity between the American and Swedish spruce it might be well to try to make such a healthful drink from our spruce either by this method or some other.

MENNONITE INSTITUTIONS IN EARLY MANITOBA: A STUDY OF THEIR ORIGINS

E. K. FRANCIS

University of Notre Dame, Notre Dame, Indiana

The Mennonites who settled in southern Manitoba in and after 1874 were part of a group which had migrated from West Prussia to Russia at the end of the eighteenth and the beginning of the nineteenth century. As colonists in Manitoba they attempted to continue their traditional culture pattern. Their partial success was due to the fact that they were left largely to themselves for almost ten years after their arrival. The present article deals with some of the distinctive culture traits of this ethnic group during the pioneer period.¹

Mennonitism is an offshoot of Evangelical Anabaptism,² one of the major Protestant movements of the Reformation. Menno Simons, a former Catholic priest of Frisia, was the founder of the Mennonite church. Between 1536 and 1544 he succeeded in uniting and organizing the persecuted Anabaptists who had gathered in the northern parts of the Netherlands. After he had been forced to leave his country, he extended his missionary activities to northern Germany, and between 1546 and 1553 he worked in the Baltic lands.

¹ Dr. E. K. Francis is assistant professor of sociology at the University of Notre Dame. Previously he taught the same subject at the University of Manitoba and St. Paul's College, Winnipeg, Manitoba. While in Manitoba, he was engaged in a research project on the Mennonite group in that province, under the auspices of the Historical and Scientific Society of Manitoba. He has completed a book manuscript entitled In Search of Utopia: A Social History of the Mennonites in Manitoba. The article here printed is a redaction and expansion of a paper read before a meeting of the Historical and Scientific Society of Manitoba on Feb. 18, 1946, which was printed in this association's Papers . . . 1945–46 (Winnipeg, 1946), 56–71.—Editor.

² See R. J. Smithson, The Anabaptists (London, 1935); and the valuable analysis by Ernst Müller, Geschichte der Bernischen Täufer (Frauenfeld, 1895). See also Harold S. Bender, "The Anabaptist Vision," Mennonite Quarterly Review, 18:67-88 (April 1944); and Donovan E. Smucker, "The Theological Triumph of the Early Anabaptist Mennonites," ibid., 19:5-26 (January 1945).

West Prussia, particularly the marshy lowlands of the Vistula-Nogat Delta, became the refuge for considerable numbers of Dutch Protestants who had fled before the Counter Reformation of the Duke of Alba. Many of these refugees were Mennonites who, together with converts made among other settlers, eventually formed large religious congregations. The members of these congregations, who became commonly known as Mennonites after about 1570, encountered much opposition from the recognized Catholic and Protestant churches and from the secular authorities of West Prussia which was then subject to the Polish king. When that territory came under the rule of the Prussian king in 1772, new difficulties induced a section of the Prussian Mennonites to accept a generous invitation by the Tsarina Catherine II in 1788 to settle in southern Russia. There, for the first time in their history, these Mennonites found an opportunity to live according to the principles of their faith and to develop their social institutions in almost complete segregation from other cultures.

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After 1870 the introduction of the general military draft and the suspension of the autonomous administration of their colonies in Russia, combined with social unrest due to scarcity of contiguous land, prompted the Mennonites to look to the New World. Both the Canadian Government and railroad interests in the United States were anxious to win such a large body of most desirable immigrants for the empty spaces of the recently opened West. Although the majority were finally pacified by substantial concessions and decided to remain in Russia, about 10,000 of them turned to the United States and approximately 8,000 settled in Manitoba. During the first decade after their immigration, privileges granted to them by the Dominion Government and the absence of any systematic administration of outlying districts by the Provincial Government permitted them to establish a form of socio-economic organization in their settlements, called Reserves, without any reference to the social pattern of the majority of the population.

FIVE SIGNIFICANT INSTITUTIONS

The following are the most conspicuous institutions which characterize Mennonite culture in Manitoba during this pioneer period.

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Habitat. All the Mennonites in early Manitoba, with a few exceptions, lived in small villages of from six to thirty homesteads. The lots for the dwellings, each of the same size, where laid out either on both sides or on one side of a road. Thus a village consisted of one or two rows of houses, each at the same moderate distance from the other. The arrangement of houses in the Mennonite village bears a certain resemblance to the type of line or row village which is derived from the medieval Marschhufendorf (marsh village) and Waldhufendorf (forest village). The latter type of habitat was introduced into North America from northern France by the French settlers and is still characteristic of French Canada and Louisiana. In both marsh and forest villages (and related types), the farm buildings are more or less loosely located along a road or a river, and the Hufe (unit of tenure) or farm extends in one single rectangular piece, parallel to the neighboring farms, back into raw forest or marsh land. Thus cultivation progresses gradually from the dwellings of the farmers far into the hinterland until further cultivation becomes uneconomical. Usually the last portion of the property is preserved as uncultivated commons where fuel and wild hay can be obtained and animals pastured. The long rows of houses that border the main artery of communication are united in village communities or parishes.

In the Mennonite village, on the other hand, the village lot of each farmer comprised only enough space for buildings and barnyard, plus a few acres of arable land to be used for a garden, orchard, vegetable plot, and the like. The rest of his property, however, was laid out after the pattern of the open-field system, as found, for example, in thirteenth-century England. George Caspar Homans has called it champion husbandry, while R. Kötzschke and W. Ebert have coined for it the very descriptive term, Siedlungsform der Gemeinschaft (solidaristic type of settlement). It was widely adopted all over Europe during and after the Carolingian period. However, the Haufen-

dorf and the Angerdorf, both of the nucleated village type, are more commonly connected with the open-field system than the line village. Thus, the Mennonite form of settlement seems to represent a rather unusual combination of characteristics of the marsh village and the solidaristic type of settlement.

Communal Organization. With the exception of the old river parishes which were arranged in the manner described above for the forest village, Canadian legislation provided for settlement of individual farmers on scattered homesteads in the West by adopting the American checkerboard system of land survey. Accordingly, farm land was left in one piece as in the forest village but shaped in squares rather than oblongs. This prevented the formation of villages, and homesteaders usually located their dwellings so they could have easy access to all parts of their rather large property.

The Mennonites, however, were averse to living on scattered homesteads. In order to preserve village habitat and solidaristic communal organization, they obtained, prior to their immigration, a number of concessions with regard to the application of the Dominion Lands Act for members of their group. Thus, they were able to organize themselves according to the following pattern.

The families who wished to form a village community would appeal to the Oberschulze, the elected head or reeve of a Reserve, who would then allot a certain area to the community and make arrangements so that the quarter sections to which the heads of these families held property rights under the Dominion Lands Act would

licher Kulturformen in Deutschland (Bonn, 1939), maintains that the solidaristic type of settlement was closely connected with crop rotation and compulsory fallow. It originated in Carolingian Gaul and spread over Germany and to Eastern Europe. The moor and marsh village, on the other hand, is said to have developed in Flanders and Holland. From there it was taken to the East by colonists in the twelfth and thirteenth as well as in the sixteenth and seventeenth centuries. According to the same author, the forest village was a later variety of the marsh village, probably also introduced by Flemish immigrants to central Germany. However, this opinion has been contradicted by K. F. Helleiner, University of Toronto, who maintains that it was developed as early as the ninth century in western Germany and was also known in France at a very early date.

⁶ For a good survey with ground plans of the various types of settlement, see T. Lynn Smith, *The Sociology of Rural Life* (New York, 1940), 203-218.

³ George Caspar Homans, English Villagers of the Thirteenth Century (Cambridge, Mass., 1941).

⁴R. Kötzschke and W. Ebert, Geschichte der ostdeutschen Kolonisation (Leipzig, 1937).

Barthel Huppertz, Räume und Schichten bäuer-

coincide with the territory included in that village. As each family was granted one quarter section of land, the size and area of a village was determined from the beginning by the number of families. A village of 24 families, for instance, comprised 6 sections of contiguous land. The further planning of the settlement was then left to each village community thus formed. They at once proceeded to elect a *Dorfschulze* (village mayor) and two councilors, but all the major decisions were made by the *Schulzenbott*, the assembly of all operators of the farms which were incorporated in the village.

A comparatively small portion of the total village area was set aside as a village site and divided into lots in the way described above. The rest of the land allotted to the village was divided into a number of open fields, a common permanent pasture, and a common bushland to provide fuel and timber, while in the beginning some land remained unused. Every homesteader received an equal share in each of the open fields. These shares were distributed in the form of narrow strips, usually half a mile long, but their configuration was, of course, adjusted to the size and situation of the fields. The number of fields was determined by the texture, accessibility, and agricultural value of the available land. By this method an equitable distribution of land among all members of the village community was guaranteed.

Thus, to every farm belonged a lot in the village and a varying number of strips in different fields; moreover, every farmer had the right to send an equal number of animals to the common pasture. He was also entitled to a certain amount of wood and hay to be cut on unimproved lands; and finally, if needed, to one or two lots at the end of the village to build houses for his grown-up sons and their families. These latter were called Anwohner (cotters) as distinguished from the Wirte (farmers) and had no other property in the village except their house lots with small gardens.

For all encumbrances and taxes on property held within the village area, the community as such was held responsible, and it was to divide them equitably among all inhabitants. Thus, the Oberschulze, who watched over the public works in the colony, would in concurrence with all the mayors of the Reserve, prescribe to a village the amount and kind of statute labor or other tributes in cash or kind to be rendered. It was then up to the mayor and the village assembly to

distribute the burden among all farm households. Other performances or payments for purely local purposes such as school and teacher, wells, herd and herdsman, poor relief, and the like, were determined by the village assembly and also divided in equal parts among all the farmers. In addition, a considerable number of other cooperative enterprises were carried out and regulated by the community-for instance, transportation of grain, mail, and timber, erection of buildings, cheese factories, and mills, and various forms of mutual aid. There are also instances reported of field work done and machinery used collectively on a village level. However, cooperation of this kind was usually left to the initiative of individuals and was not considered a concern of the village community as such.

Although collectivistic to a considerable degree, this system cannot be termed communistic. A farm with all its appurtenances was considered private property that could be sold and inherited. It was an independent economic unit, operated by each proprietor according to his own wishes and abilities; but management and disposal, though free in principle, were strictly controlled by the community. As we have seen, the layout of each farm within the village area was determined collectively and could only be changed by collective decision and for all in the same way. As far as real estate was concerned, it was indivisible and sale to outsiders was prohibited by Mennonite mores.

Church and Civil Administration. Separation of church and civil self-government was maintained to a certain degree, particularly as far as the officeholders were concerned. The circumstances, however, under which the Mennonites set up and tried to run their colonies in Manitoba, brought about a very close association between church organization and civil administration. The socio-economic institutions according to which these people intended to live were not sanctioned by the laws of Canada and in part were directly contrary to them. Certain legal provisions had been made by order-in-council or agreement to enable them to maintain their village habitat, field system, and regional autonomy. However, these provisions held good only as long as all Mennonites consented to their communal institutions, although individuals were not prevented from appealing from Mennonite customary law to Canadian statutes or common law. Thus, any court would support a homesteader who might wish to live on, and operate individually, the quarter section to which he held legal title even if this meant the immediate disruption of the village collective. In this way, the existence of a whole village settlement was endangered if the buildings of all the farmers were on the quarter section held by the member who separated. Such cases actually occurred, for instance, in Neuanlage near Gretna.

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This situation was remedied in the following ways. First, any individual appeal to the courts and the authorities of the Province or Dominion was outlawed and made an offense against Mennonite mores. Secondly, obedience to the whole body of customary Mennonite law and to all the decisions made by elected officers as well as by any recognized public assembly was put under the strictest religious sanctions. Since the civil authorities of the colony had practically no legal means of punishing offenders, the church took over the function of a court of appeal as well as the execution of punishments. A recalcitrant individual who, for instance, refused to comply with a decision made legitimately by the majority of villagers would be brought to the attention of the Altester (bishop) and the preachers. A number of these, together with the Oberschulze and mayor, or separately, would approach the offender and try to bring him to reason by persuasion. Continued refusal to abide by the law would bring about a summons before the Bruderschaft, that is the general meeting of the church congregation presided over by the respective Ältester. Punishment consisted mainly in private censure, public censure, public confession of sin, and, as the last resort, the church ban. This last form of punishment involved very serious discomforts, quite apart from personal religious scruples and loss of face. The banned individual had to be avoided, or shunned, by all the other members of the community, including his own family; nobody was allowed to deal with him or even talk to him.

Administration of Inheritances. Unlike the village and district administration which was, at least theoretically, a secular institution, the Waisenamt (orphans' office) was considered a prime responsibility of the church, although secular officials were requested to cooperate. Its main business was to supervise the division of estates of deceased householders, the safeguarding of property rights of persons not able to care for

themselves or of minors deprived of both or either one of their parents, and the supervision of the proper upbringing of orphans. In addition, it functioned as a savings bank for church members, and from the sums of money which it held in trust, it provided substantial credits for individual as well as public enterprises. Thus, it might be called a combination of trust and loan company, a credit union and savings bank.

The body of regulations by which the Waisenamt was run is to be considered as nothing less than a law of inheritance valid for all members of the colony. It was based on the principle that a family homestead was the common property of both husband and wife, upon whom, however, rested the responsibility for rearing and educating their children and as far as possible establishing them in life when they got married. Whenever either of the parents died, the whole estate was at once assessed by the local mayor and under the supervision of the Waisenamt. Shortly afterward, the actual liquidation of the estate took place in the presence of the mayor, the Schichtgeber (surviving parent), the major heirs, and the guardians and curators for minor, insane, or absent heirs. The assessed value of the estate, including all mobile and immobile property, was divided in such a way that the Schichtgeber (the widower or widow) retained half of it, while the other half was divided in equal shares among all the children. Moreover, each of the children was entitled to a good suit of clothes, a Bible, a hymnal, a catechism, and the Zugabe (extra). The latter actually represented a customary dowry which consisted of such items as a chest of drawers, bedding, and one or more head of farm animals (usually a horse for boys, a cow for girls).

The Schichtgeber always remained in possession of the undivided farmstead but was under obligation to pay out in cash the shares credited to the other heirs upon their leaving the common household. If, however, a child had previously left the paternal home and had already received some allowance while both parents were still alive, this amount was subtracted from his share. Similarly, the Zugabe was only given if the child stayed and worked on the family farm until the age of twenty-one. Minor children were left with the surviving parent, who usually married again fairly soon, but if they had to be removed by their guardians for some reason, their capital was to bear 5 percent interest, and the parent was to pay

for their board until the age of twelve; after this, they apparently were no longer considered an economic liability to foster parents. The shares of major heirs which were not withdrawn also bore interest. The shares of minors in liquid capital as well as in the proceeds of auction sales, and interest credited to their account, were deposited with the Waisenamt. In every case, settlement had to be perfected at least before the surviving parent, man or woman, entered a new marriage, and no marriage was solemnized by any minister without a written permit issued by the Waisenamt.

Fire Insurance. Another institution of major social significance was fire insurance. Originally, it was compulsory for all the colonists. Reparation for losses was made according to an elaborate key. In cases of total loss of buildings, twothirds of their assessed tax value was paid out in cash, and fixed sums were designated for each lost animal, piece of machinery, etc. Lost stores of grain, hay, etc., were restituted in kind. Premiums, however, were collected from each of the insured only after the damage had occurred, and the sums due were divided among them in proportion to the assessed value of their insured property. As social controls weakened and compulsion to make the payments became difficult, the communal system of security against damages caused by fire was changed to one which more and more took on the character of a mutual fire insurance association on a voluntary basis.

BASIC RELIGIOUS DOCTRINES

In order to establish the origins of the aforementioned institutions, we shall first examine the principal tenets of the Mennonite creed that affect social life.

The Anabaptists not only continued their opposition to the old Roman Catholic church but extended it to the new Protestant churches of Zwingli, Luther, and Calvin whom they accused of having betrayed the ideals of the Reformation. As one of them wrote: "It happened to be with them not different as if one mendeth an old kettle, whereby the hole becometh but worse."

Against the doctrines of Luther and Calvin on grace, the Anabaptists emphasized the freedom of will, individual responsibility for moral conduct, and the imitation of Christ.

While other reformers wished to reform the old church, the Anabaptists rejected a thousand years of church history as one great apostasy from the ideal of the Apostolic church. To them, the church was the community of those who had been regenerated by the Holy Spirit, a voluntary brotherhood of the saved and saints. They considered baptism a symbol of church membership which could be attained only upon profession of faith and proof of sanctity. Whenever, after admission to the church, sins were committed without subsequent penance and atonement, church membership was forfeited and had to be explicitly revoked by the ban.

The Anabaptists insisted that true Christians, united in the visible church, ought to live separate from the "world" in communities modeled after those described in the New Testament. Although they considered the State an institution of God which had to be obeyed, they held it to be an order outside the Christian church. Government and force are necessary only for "sinners," while the saints live by conscience and brotherly church control. In 1571 an Anabaptist conference at Frankenthal declared that the sword was the rightful attribute of the civil authority, but they wished to have no part in any such authority and to remain always subjects.

In their desire to follow the precepts of the New Testament to the letter, the Mennonites adopted the principle of nonresistance, particularly after the disaster of Münster, and rejected the taking of oaths.

The church organization of the Mennonites was congregational. They chose laymen as their ministers, either by lot or, more commonly, by majority vote cast by the respective congregations.

These early Anabaptist doctrines and practices, which have been partly preserved intact through the centuries, show some relationship with the Mennonite institutions in Manitoba as described above. Their congregational church structure contains a number of democratic elements, such as majority rule, election of officers, and self-government. The emphasis on the Christian concept of brotherly love was certainly favorable to a spirit of cooperation and mutual aid. Their sense of justice fostered the equitable distribution of the means of production and of inherited property.

However, it cannot be said that the socioeconomic organization and institutions of the Mennonites in Manitoba in all their particular aspects followed as a necessary consequence from

their religious ideals. Above all, the intermingling of church and civil authority seems to contradict one of the basic principles of their faith, the separation of church and coercive state. Moreover, the culture of the Old Order Amish Mennonites in Lancaster County, Pennsylvania, which is based on the same general religious principles, shows many essential differences from that of the group in Manitoba. The same is true with regard to the Hutterites. Both are offshoots of the southern branch of sixteenth-century Anabaptism. Because of violent persecutions, the Amish Mennonites had to leave their old homes in Switzerland and eventually migrated to Pennsylvania, while the followers of Jakob Hutter, a Tyrolese peasant, established their first Bruderhof in Moravia, but were driven from country to country, and made their way from Russia to the New World together with the Russian Mennonites in the 1870s. The Hutterites live under a system of true communism whereby all property is owned and operated by the congregation as such, which is organized along lines similar to a monastic community.7 The Old Order Amish Mennonites, on the other hand, recognize private property in the same way as the Mennonites of Russia and Manitoba, but none of the peculiar institutions described in this article are known to them.8

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These observations make it highly probable that factors other than religious persuasion have contributed to the origin of the institutions investigated in this article.

PRUSSIAN ORIGINS

We can assert with a fair degree of certainty that the social conditions under which the Mennonites lived in West Prussia for a little more than two centuries prior to their emigration to Russia differed considerably from those which prevailed among them at the time when they came to Manitoba another century later. In the sixteenth century, and partly in the seventeenth, groups of immigrants from the Netherlands—mostly refugees

immigrants from the Netherlands—mostly refugees

⁷ See Lee Emerson Deets, *The Hutterites; A Study in Social Cohesion* (Gettysburg, Pa., 1939); and John Horsch, *The Hutterian Brethren*, 1528-1931 (Goshen, Ind., 1931).

⁸ See Walter M. Kollmorgen, Culture of a Contemporary Rural Community: The Old Order Amish of Lancaster County, Pennsylvania (U. S. Bureau of Agricultural Economics, Rural Life Studies 4, Washington, 1942).

from the Counter Reformation-were invited by various landlords in West Prussia to open up. "after the Dutch manner," certain areas of wet alluvial land that had been left waste or had become devastated in the course of time and were continuously threatened by floods or to polder in shallow basins of brackish water to reclaim them permanently for agriculture. Contracts were always made with a definite group of colonists who had to arrange among themselves the manner in which their stipulations were executed. The landlord did not deal with each individual farmer but with the local magistrate or Schulze who was elected for one or two years from amongst the community. The form of tenure was usually the Zeitpacht (tenure for a certain time) as applied to the holländische Zinshuse (Dutch leasehold). Under it, land was given to the immigrants in simple nonheritable tenure for a limited, often rather short, period of time.

Habitat and Communal Organization. The Mennonite villages in West Prussia were organized after the pattern of the marsh village described above. Buildings were arranged in a long drawnout row, usually following the courses of river banks. The distance between individual dwellings was more than in the Mennonite villages in Manitoba. All the land belonging to a homestead was kept in one piece, forming a long strip, and near one of its shorter sides the farm buildings were situated. The open-field system with its high degree of cooperation, solidarity, and strict communal supervision of the farm economy was alien to the Hollander settlements in West Prussia, although it did exist there from the Middle Ages onward in settlements founded prior to the Mennonite immigration. In the latter, the villages were not a row but a nucleated type, mostly the Angerdorf, where the buildings were arranged somewhat loosely around central squares, the village greens, upon which the parish church and other public buildings were located.9

Customary laws or mores, copied from their ancestral home, provided a strong regulative force in the Hollander communities of Prussia. Generally the village community regulated practically all phases of life. Although each individual

⁹ H. Bertram, W. La Baume, and O. Klöppel, Das Weichsel-Nogat-Delta (Danzig, 1924), reproduces the plan of a West Prussian medieval Angerdorf or nucleated village. The same habitat is found in certain towns of New England. farm theoretically constituted an independent unit whose operation was left to private initiative, the erection and maintenance of the elaborate dike and drainage system which was necessary in the polders and marshes of the Vistula mouth, necessitated a close cooperation and strict discipline.

Thus, it becomes obvious that the Mennonite and other Hollander villages in West Prussia were organized and laid out mainly after a pattern which had been customary in their country of origin, the Netherlands. It was developed there in the Middle Ages and thus, of course, without any particular reference to Anabaptist principles.

Church and Civil Administration. As all the Mennonite institutions in West Prussia remained within the legal framework established at that time and were fully safeguarded by the ordinary courts and superior civil authorities, there is no reason to assume that the Mennonite church had any cause for or opportunity of taking over public functions in the fields of economy, local government, and law. It must also be kept in mind that the Mennonite religion was only tolerated by the recognized churches, the Evangelical and the Catholic, as well as by the State and had no official status. Moreover, probably few, if any, of the Hollander settlements (at least in the earlier period) were made up exclusively of Mennonites, although in the seventeenth and eighteenth centuries a majority of their population appear to have belonged to this denomination. Even then, the Mennonites seem to have lived largely intermingled with Hollanders of different church affiliation.10

Inheritance. Whether institutions similar to the Waisenamt already existed in some form in West Prussia is not known. Mennonite tradition maintains, and it seems not entirely improbable, that the church did concern itself with the safeguarding of the interests of orphans. It is, however, important to note that one form of inheritance which was in force in West Prussia prior to Mennonite immigration is based on the same principle as that followed by the Waisenamt regulations. Inheritance of property leased under the Law of Chulm was according to the Flemish Law which provided equal rights to blood relatives

¹⁰ That the Mennonites in the old villages of West Prussia lived intermingled with non-Mennonites follows clearly from the account by H. Bertram on early settlement in Bertram, La Baume, and Klöppel, Das Weichsel-Nogat-Delta.

of both sexes.11 Moreover, both husband and wife had the right to an equal share in half of their respective properties. Its main provisions have been described as follows: "Of the Flemish law among the colonists from the Netherlands in northern and eastern Germany we know that equal right of succession applied to both sons and daughters, and the other cognates of the landowners falling under that law. At the same time it was linked with the principle of eheliche Halbteilung after the conclusion of marriage.... According to Flemish law and the adopted principle of eheliche Halbteilung [each spouse] . . . was entitled to half of the combined property of both spouses, if not already during the lifetime at least after the death of the [other] spouse."12

The principle of the indivisibility of farm holdings was also common to many parts of Germanic Europe, including medieval Prussia, from early times

Fire Insurance. As far as compulsory fire insurance is concerned, we find no direct proof of its existence in Prussia prior to the Mennonite migration to Russia. However, the fact that in Russia assessment for it was made according to the preussische Brandhube makes its Prussian origin unquestionable. This Hube or Hufe was equal to 15 dessiatines while the size of the standard Hufe in Russia was 65 dessiatines (about 175 acres). According to a Mennonite tradition

¹¹ The Law of Chulm was laid down in the Kulmer Handfeste (charter of the city of Chulm) of 1233 and in many subsequent patents for urban and rural settlements such as the Handfeste von Preussisch Holland (charter of Prussian Holland) of 1292.

12 This statement is a translation of the very difficult German text which reads: "Von flämischen Recht der niederländischen Kolonisten im nördlichen und östlichen Deutschland wissen wir, dass ihm das gleiche Erbrecht der Söhne und Töchter und der übrigen Blutsverwandten der damit begabten Grundbesitzer, ohne Unterschied des Geschlechts, immanent war. Zugleich verknüpfte sich damit bei stattgehabter Verheiratung die eheliche Halbteilung.... Nach flämischem Recht und dem adoptierten Prinzip der ehelichen Halbteilung gebührt [sc. dem Ehegatten], wenn nicht schon bei Lebzeiten, so doch beim Tode des anderen Ehegatten, die Hälfte des beiderseitigen Gattenvermögens (sog. Kölmische Hälfte)."-W. von Brünneck, Zur Geschichte des Grundeigenthums in Ostund Westpreussen; Die kölmischen Güter (Berlin, 1891),

13 A. Klaus, Unsere Kolonien; Studien und materialien zur Geschichte und Statistik der ausländischen

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Up to this point, our discussion seems to indicate that a number of Mennonite culture traits originated in the Hollander settlements of West Prussia. To these belong habitation in row villages, communal administration by elected officers, law of inheritance, and communal fire insurance, and perhaps the institution of the Waisenamt or some forerunner of it. None of these institutions seem to have any direct relation to Anabaptist religious principles but appear partly as imports from the ancestral home of the sixteenth-century immigrants and partly as later adaptations to their new environment. We, therefore, have to look to further developments in Russia in order to establish the origin of the traits not accounted for so far and the factors leading to their final integration into the consistent culture pattern which was characteristic of the Mennonite group in early Manitoba.

RUSSIAN MODIFICATIONS

Many years before the Mennonites of Prussia were considered as prospective immigrants to Russia, legal provisions had been made in that country for the economic organization and political administration of foreign settlements, which were to become decisive for the future social organization of the Mennonite immigrants. The second half of the eighteenth century was a period of large-scale colonization and agrarian reforms in the three leading empires that emerged in Eastern Europe between the wars against the Turks and the partition of Poland: Austria, Russia, and Prussia. It was the absolute monarchs of that day, Maria Theresa and Joseph II, Catherine II, and Frederick II, whose names are inseparably connected with the improvement of economic, social, and cultural conditions in that part of the Continent. In their desire to consolidate their territorial acquisitions, they made the settlement of depopulated or less advanced parts of their possessions a cornerstone of their broad and rational agrarian policies. The Tsarina, herself a German princess, turned mainly to Germany to win model farmers for the colonization of what was then called New Russia, that is the Ukraine.

Before considering the development of Mennonite institutions in Russia we must examine the

Kolonisation in Russland (Odess 1, 1887), a German translation of a Russian book, published in 1869.

general legal framework for foreign settlements which had been laid down by the Russian government long before the Mennonites entered the picture but which was applied also to their colonies. Under Catherine II, German and Western influences were strongly felt in the expanding realms of Russia, although they had been present ever since Peter I had decided to remodel his domain into a modern European state. Thus, it is not surprising to find among the socio-economic institutions decreed by Catherine and her successors for the benefit of foreign settlers striking similarities to those which belonged to the old German cultural heritage rather than the typical Russian and Slavic traditions.

On December 4, 1762 and July 22, 1763, the Tsarina issued two manifestos by which foreigners from all over Europe, except Jews, were invited to settle in her possessions. In the second manifesto and in the colonial law of March 19, 1764 which was based on it, the following provisions, among others, were made. Free land was to be provided by the Crown above all in the southern governments of Yekatarinoslav, Cherson, and Tauris. The new colonies were to be formed by groups that were not only homogeneous by nationality but mainly by church affiliation, and districts were to be established with about a thousand families each. Within a district (called volost) villages were to be laid out. All the land within a village became the collective and indivisible property (dominium directum) of the village. Land was apportioned in such a way that every settler family, registered as belonging to a certain settlement, obtained the heritable possession (dominium utile) of a definite measure of udobnie (arable land) in that village. Its size in Mennonite colonies usually was 65 dessiatines (about 175 acres) per family and homestead. The remainder of the village land, which in the beginning was quite large, was reserved for the common use of the village community. Some of it was left for common pasture, hay land, bush, and the like. But it also could be leased to private individuals, in which case the rent collected became part of the community's income. Thus, each village resembled a stock company and each farmer a shareholder. The homestead was given to a family in permanent usufruct, but if it died out the farm reverted to the community. No land apportioned to a farm family for heritable usufruct and possession was permitted to be sold, mortgaged, or partitioned. These initial provisions also included a law of inheritance; as it was repudiated by the Mennonites and most of the other foreign colonists it need not be discussed here. Of greater significance was the law's insistence on free "inner jurisdiction," or, as we would say, local autonomy, for each colony. However, this provision was not carried out at once but was revived later after concrete experience had been gained with certain classes of colonists, mainly the Mennonites.

We have now to ask in what way the Mennonites contributed to the further development of these principles originally laid down without any reference to them. The privileges granted prior to their immigration upon their request and made known to them on March 3, 1788 by the Russian minister at Danzig contain little which would have a bearing on the future form of their social organization.¹⁴

In July 1789 the first group of Mennonites from Danzig arrived at the Chortitza River, a small creek flowing into the Dnepr River. The division of the land among the individual settlers was left to their own decision. At first, obviously an attempt was made to settle in exactly the manner to which they had been accustomed in Prussia. All the land belonging to a homestead was apportioned in one piece (probably in oblong rectangles), and each homesteader built individually on his own farm. However, repeated attacks by half-civilized Tartar neighbors and horse thieves and the general insecurity of the country soon forced the settlers to move closer together. 15 The transition from a loose to a compact village habitat apparently was brought about by such incidents, while the arrangement of the dwellings in rows was maintained.

Until 1800, conditions in the new settlements were rather chaotic. The letter of the law meant little in comparison with the arbitrary actions of local officials. This, however, left the settlers considerable leeway in managing their inner affairs according to their own concepts. After the accession of Tsar Paul I, the authorities made a strong

¹⁴ This and a great number of other legal documents concerning the Mennonite colonies in Russia have been published in the German text or in German translations from Russian originals, in D. H. Epp, Die Chortitzer Mennoniten (Rosenthal near Chortitz, Russia, 1888), and Die Molotschnaer Mennoniten (Halbstadt, Tauris, 1908).

15 Epp, Die Chorlitzer Mennoniten, ch. 3.

effort to bring order into the colonial administration; to this end, new laws were enacted in 1800. 1801, and 1803. With respect to them, one observer did not hesitate to state that the Russian government "convinced of the surprisingly quick success of the Mennonite economy, took the institutions of the Mennonites, up to a certain degree, as a model in the organization of the majority of the other colonies."16 This judgment is all the more valuable as its author was a high civil servant, a state councilor, who had the opportunity to deal with the matter in an official capacity during the 1860s. He concluded that in this way the communal family organization of the Mennonites and their legal concepts and practices came to exercise a decisive influence upon all colonies of foreigners in Russia.

The Russian legislation therefore seems to offer an opportunity to infer the manner in which the Mennonites, when more or less left alone, developed their socio-economic organization. On September 6, 1800, they obtained from the new monarch a gramota (charter) which confirmed and partly extended the privileges previously granted to them. Of particular interest is a reference in this document to the fact that inheritance among the Mennonites followed the rules laid down by their own customary law rather than the Russian colonial law and article 2 of the gramota recognizes, at least in part, this significant digression.¹⁷

The Instructions for the Inner Organization which were issued in 1800, 1801, and 1803 not only for the Mennonites but for most of the other foreign colonists in Russia went considerably further. The resemblance of these provisions to Mennonite institutions, as stated above for the early Manitoban period, proves conclusively that the latter were directly imported from Russia with only minor changes. The form of village self-administration, as described for Manitoba, is identical with the Russian regulations. In Manitoba, the Reserve took the place of the volost. At the head in both cases was the Oberschulze. In Russia, however, the Schulze and Oberschulze were endowed by law with wide executive and judicial powers, which were shared with village and district assemblies, and in court with the "best men," apparently some sort of jurymen. Moreover the village assembly also had the right

¹⁶ Klaus, Unsere Kolonien, 163ff.

¹⁷ Epp, Die Chortitzer Mennoniten, 66; Klaus, Unsere Kolonien, Appendix, 114.

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to expel a member from the community, thus depriving him of privileges connected with the status of a foreign colonist, including the family homestead.

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Without going further into details, interesting as they may be, we now have to decide what was the original contribution of the Mennonites regarding self-administration. The complete separation of ecclesiastical from secular power was in perfect agreement with their religious concepts. It is also apparent that the highly democratic form of local self-government fits in well with the congregational organization of their church, according to which their ministers are elected by and from the members of the church and all major decisions are left to the church meeting (Bruderschaft).

In another respect, however, serious difficulties arose from the fact that the Mennonites themselves had to take over all the local magistracies and the burden of maintaining law and order in their settlements. Refusal to accept worldly power and offices was one of the principles of the Evangelical Anabaptists. Although Menno Simons did not leave any definite doctrine on civil authority, the idea was widespread among Mennonites that force and government is necessary only for the sinners, the "world," while the "saved," that is the members of the true church, despite being bound to obey the civil authority in nonreligious matters, do not need any coercive power in addition to their own consciences and the brotherly discipline of the church. The real test for this concept came when the Mennonites themselves had to take over the full responsibility for their political organization and were unable to leave it to others to "rule the world" as they had preferred to do before. Of course, they at once ran up against the weakness of human nature, even the human nature of baptized Mennonites and their progeny. Since it was impossible to expel from their communities all those who acted against the principles of their faith, even those who were disciplined by excommunication, the civil authorities, now in the hands of Mennonites, had to resort to force and punitive measures, often very severe ones including corporal punishment, just as any other civil authority elsewhere in the world. This unavoidable inconsistency, in fact, became the main cause of many theological quarrels and church divisions, which occurred in the course of the nineteenth century.

Later on, a rather serious blending between church and civil affairs occurred, particularly in the Molotschna colony. In their extended struggle against demands advanced by the landless members of the community, the party of the farmers frequently used the church as a powerful weapon in the defense of their interests. This was all the easier to be achieved as elders and preachers usually were elected from the ranks of the wealthy farmers. In order to suppress dissident church groups which were composed largely of the economically and socially dissatisfied elements, the ministers organized themselves into district conferences, which cooperated closely with the civil district authorities, not always to the advantage of religion.18

The basic elements of this communal constitution were obviously copied from similar institutions in Prussia. Not only the name of the Schulze but also his official position as the responsible representative of the colony was a direct import from the old homeland of the Mennonites, although the Russian practice apparently opened a wider field for autonomy. Moreover, the contributions made to the political organization by Russian civil servants in their advisory and supervisory capacities, either as local inspectors attached to each volost or as directors of the Vormundschafts-Kanzlei (department for the care of foreign colonies), should not be underrated. Since many of these officials were Baltic noblemen of German extraction and many others learned jurists and expert administrators, it is not surprising if they took institutions, tried out for centuries in certain parts of Germany, as models for the proposals that they submitted to higher authorities as well as to the colonists themselves. We may conclude that Mennonite self-government in Russia was not only the result of past experience in Prussia and of outside influence but also of well thought-out and efficient adjustment of inherited forms to new conditions which were made with direct reference to their congregational and democratic church organization. Their constitution was not only unlike anything else which existed at the time in the Russian Empire but still remained one step ahead of what was achieved for the Russian peasantry after their liberation on February 19, 1861.

The colonial laws of 1800, 1801, and 1803 and

¹⁸ Klaus, Unsere Kolonien; and P. M. Friesen, Die Alt-Evangelische mennonitische Brüderschaft in Russland, 1789-1910 (Halbstadt, 1911).

later additions (all of them were eventually embodied in the Code of 1842) also throw light on the development of the Mennonite economic system. References in the earlier of these statutes clearly show that originally all the land belonging to a homestead remained undivided in one consolidated piece. It was the Russian authorities themselves who suggested a redivision of the arable appurtenances of all the farms in a village into three, four, five, and more open fields. The Instructions for the Inner Organization allowed such a compulsory redistribution of the village lands "for the improvement of agriculture" upon a majority decision by the village assembly. It is obvious that this measure was a deviation from the economic organization of the marsh and forest village. It had, however, its precedent in the agrarian system of the Russian peasantry. In the ancient Slavic villages, land was partitioned among all inhabitants, though not in open fields nor in long rectangles but in scattered irregular blocks (checkerboard fields). Under the institution of the mir, which had been imposed upon the Russian peasantry in the seventeen century, redistribution of the land held in common property by the village was made periodically according to the male census soul. One reason for this practice was the wish to assure an equitable partition according to the varying agricultural value of fields. All the property, real and mobile, was being inherited in equal parts by all heirs, as was provided by Peter I's ukase of March 23, 1714, although this went back to an ancient Slavic custom. While Klaus recognized the similarity between the ideal of equal inheritance which prevailed among the Russian peasants and among the Mennonites, he, and most later authors, not only failed to see the origin of the latter in ancient western legal practices but attributed it solely to their religious concepts. In the Russian village, the number of farms and the number of representatives in the village assembly was multiplied not only with every census but with every death that occurred in the ranks of the operators, and the size of the holdings decreased in a lamentable manner. The principle of the indivisibility of real property among the Mennonites had no counterpart in Russian peasant customs. This was not simply a result of the special Russian legislation for foreign colonists; its precedents were among the older agrarian systems of the West. whose influence Klaus erroneously denied.

Thus, we see that the layout of the farms and

the farm villages, characteristic of the Mennonites in Russia and Manitoba, stands between the system of the Russian mir and that prevailing among the Prussian Mennonites. Communal property by villages and heritable usufruct by families was decreed for both by the Russian government. However, by declaring every farm in the foreign colonies with all its appurtenances an indivisible family possession, the dangerous reduction of the size of the farm unit which had become so characteristic of the Russian peasant economy was prevented.

The Mennonite customary law of inheritance and their institutions for administering inheritances for orphans and absent heirs were partly legalized by the gramota of 1800. In a petition, submitted by the Mennonites of the Molotschna colony to the Russian authorities, we find the following passage: "We are unable to depart in the least detail from our rules regarding inheritance ... these regulations are closely connected with our religious beliefs and principles and are even based on them...."19 These rules, however, are materially identical with the principles of the Flemish law of inheritance which was in wide use throughout the Middle Ages and which the Mennonites simply assimilated from a social heritage shared by them with all the Hollanders of West Prussia. This is a good example of a social phenomenon common to most cultures. Whatever the roots and origin of a particular culture trait, it tends to assume a magic quality, a religious sanction, when threatened from without. Although the law of inheritance was in no way connected with the Mennonite religion, being an ancient social heritage of the group, it was revered by them as a tradition almost as sacred and inalienable as nonresistance or any other of their strictly religious tenets.20 Eventually, the institution and functions of the Waisenamt as described above were fully recognized by the Russian law for the Mennonite settlements and even imitated by other foreign colonies in that country.

CONCLUSION

In conclusion it may be said that the following factors seem to have contributed to the develop-

¹⁹ Klaus, Unsere Kolonien, 238.

²⁰ With exactly the same tenacity and religious arguments, Mennonites have repeatedly upheld others of their own peculiar folkways such as dress, church language and music, beards (or the shaving of them, as the case may be), etc.

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Social Heritage. The culture pattern of the Mennonites in Russia which was transferred to Manitoba with only minor adjustments to the laws of the new country contained certain elements of a social heritage derived from the Hollander settlements of West Prussia without any reference to peculiar religious beliefs.

Segregation. For the first time in their history, the movement to Russia made possible the organization of homogeneous communities exclusively comprising Mennonite church members and their unbaptized children. This permitted the full realization of the religious principle of separation from the "world." Contacts with the out-group, tabooed by the church, were made still more difficult by the difference of language, and this segregation was fully recognized by the Russian code of law and administrative practice. Thus assimilation of Slavic culture traits was largely excluded.

Acculturation. New culture traits were introduced in Russia mainly under the influence of government legislation. The general framework of the social and economic organization of the Mennonite colonies in Russia was laid down independently from them and prior to their immigration. Later on, however, it was partly adjusted to their own customs and to spontaneous developments within their settlements which were stimulated by novel environment. These modifications concern primarily the form and extent of local self-administration. The introduction of the open-field system was entirely due to Russian economic planning.

By and large, the provisions and intentions of the Russian government were in agreement with the social heritage and religious principles of the

Mennonite immigrants. This probably explains the readiness with which they adjusted themselves to the legal framework set up by the authorities. Thus, Klaus was able to write: "The principle of communal property of land, which is not known to Mennonites abroad, appears however as de jure completely identical with the communal-religious doctrines and statutes of their church order. On the other hand, the principle, according to which one person should operate a farm, corresponds with the agricultural methods [i.e., social heritage] of the Mennonites. For, this principle gave the Mennonite community the full opportunity to develop logically that system of personal-communal economy the essential points of which had been already established by the law of March 19, 1764."21 Where such provisions, however, contradicted some traditional institution, as was the case with the law of inheritance originally prescribed by the Russian legislation, the Mennonites successfully opposed any attempt to put them into force.

Religion. The religious concepts of the group played largely a supporting and selective role in the formation of these institutions. None of them were completely new inventions of the Mennonite group as such. On the other hand the church was always a decisive factor in the preservation of once accepted cultural elements and their integration into a consistent culture pattern. There was a strong tendency to give the fullest religious sanction to institutions which originally had no religious connotation but had become part of their social heritage. When the law of the country failed to protect them any longer, the church-contrary to the traditional principle of strict division between church and civil authority-took over a large proportion of the latter's functions.

" Klaus, Unsere Kolonien, 199ff.

THE AGRICULTURAL PROBLEM AND NINETEENTH-CENTURY INDUSTRIALISM

THEODORE SALOUTOS

Department of History, University of California, Los Angeles

Perhaps no development of the nineteenth century brought greater disappointment to the American farmers than did their failure to realize the prosperity that they had expected from industrialism.1 In fact, the results were anticlimactic. The innumerable forces, unleashed by the transformation of the national economy from an agricultural to an industrial base, made farming far more dependent, if not subservient, to the rest of the economy than most farmers suspected. Still, all the while agriculture was undergoing the most trying experiences in attempting to adapt itself to capitalistic methods of production and distribution, the farmers, through their spokesmen, proclaimed that their prosperity was fundamental to that of the Nation.2

Naturally, the transition from an agricultural to an industrial economy was hardly a tranquil process. For one thing, the advocates of manufactures had to make an aggressive bid for the support of the agriculturists who comprised the bulk of the population. Most of the wealth in the beginning was invested in agriculture, the agrarian tradition was strong, and the thought of an industrial society haunted many. That the advocates of indus-

¹ This article was presented at the meeting of the Agricultural History Society with the American Historical Association in New York City on Dec. 30, 1946.

In its broadest sense the term industrialism as used in this study encompasses manufactures, commerce, transportation, and allied interests, exclusive of farming.

² One of the richest sources of data on the agricultural problem that remains relatively untapped by historians is the U. S. Industrial Commission's Report...on Agriculture and Agricultural Labor, vol. 10 (Washington, 1901).

³ U. S. Bureau of the Census, A Century of Population Growth (Washington, 1909), 26.

*On the distribution of wealth C. F. Emerick, "An Analysis of Agricultural Discontent in the United States," *Political Science Quarterly*, 11:439 (Sept. 1896), is suggestive. Hereafter this article is cited: Emerick, in *Political Science Quarterly*. See also the U. S. Department of Commerce and Labor, *Statistical Abstract of the United States*, 1904, 552-555.

trialism, a numerically inferior, strong-willed, better-disciplined, and well-financed group, should provide the framework for a system that engulfed and dislodged agriculture as the dominant segment of the Nation's economy was a tribute to their organizing genius, the potency of their arguments, and the irresistible force of industrialism.

One of the greatest arsenals from which the advocates of manufactures drew their arguments was Alexander Hamilton's Report on Manufactures. Hamilton, in this, conceded that agriculture was entitled to first consideration within the economy and that it had everything to gain from the promotion of manufactures. Greater markets were promised at home and abroad; specialization would be promoted, which, in turn, would lead to greater production because the "artificer" and the farmer would be free to perform special functions. The resulting growth of manufactures would absorb many tillers, or would-be tillers, of the soil; it would provide gainful occupations which agriculture could not possibly develop for them, and it would promote intensive cultivation as well as better methods of farming.5

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One shrewd method was the identification of industrialism with the national welfare. Besides Alexander Hamilton, influential leaders like George Washington, Matthew Carey, Tench Coxe, Henry Clay, and numerous others, not to mention publications like the American Museum and Niles' Weekly Register, loaned their support to manufactures. Manufacturing nations, the argument

⁶ Edward G. Bourne, "Alexander Hamilton and Adam Smith," Quarterly Journal of Economics, 8:328-329 (April 1894); Alexander Hamilton, Papers on Public Credit, ed. by Samuel McKee, Jr. (New York, 1934), 177, 180, 188, 197, 199.

^a For examples, see John C. Fitzpatrick, ed., The Writings of George Washington, 14:313 (Washington, 1936), 35:315-316 (1940); American State Papers, Documents, Legislative and Executive, of the Congress of the United States... Finance, 2:674 (Washington, 1832); Harold Hutcheson, Tench Coxe (Baltimore, 1938), 139-141; Samuel Rezneck, "The Rise and Early Development of Industrial Consciousness in the United States,

ran with considerable merit, were wealthier than those that depended on agriculture and the exportation of raw materials.

Britain, by way of illustration, had seldom permitted other nations to supply her with goods that she, herself, could produce; her greatness was due neither to her geographical position nor to the magnitude of her domain, but to her artisans and manufactures.7 Manufacturing promised "to rouse the sluggish inhabitants," people the Nation "with a hardy and robust race of men, fit for every valuable purpose," and bring to it "the voice of festivity and joy . . . instead of the groans of misery, and the sighs of discontent."8 Opportunities would be provided for all. New sources would be opened "for the employment of capital in the interior; the coasting trade and internal commerce will receive a new impulse; domestic industry will put to shame idleness and dissipation; foreign nations will loose their influence over our councils. The fertile lands of America will rise to their just value, by bringing a market to the door of the farmer. The riches with which nature has so bountifully blessed this country, will be explored and brought into use, and the minerals and waters of the country will be employed to the purposes for which they were designed by the God of nature." It was incumbent upon the United States to "imitate England or France, without, however, making the source of riches a rod of oppression, as they have done; and, notwithstanding artisans are greatly oppressed there, whatever of republicanism is to be found in their constitu_

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1760-1830," Journal of Economic and Business History, 4:791 (Aug. 1932); and Niles' Weekly Register, 1(1):3 (Sept. 7, 1811). See especially "To the Farmers of America," American Review, 15:191 (March 1852); and U. S. Census Office, 8th Census, 1860, Manufactures of the United States in 1860, iv. According to Condy Raguet, The Principles of Free Trade (Philadelphia, 1835), 128, Niles' Weekly Register was used as a sort of "textbook" by the protectionists.

⁷ American State Papers... Finance, 2:466; and James H. Lanman, "Domestic Industry," Hunt's Merchants' Magazine, 2:364-365 (May 1840). J. M. Edmunds, Commissioner, General Land Office, in charge of the census, quoted Adam Smith as follows: "the most opulent nations, indeed, generally excel all their neighbors in agricultures, as well as in manufactures; but they are eminently more distinguished by their superiority in the latter than in the former.' "—U. S. Census Office, 8th Census, 1860, Manufactures of the United States in 1860, iv.

⁸ Louis Fitzgerald Tasistro, "Political Economy," Hunt's Merchants' Magazine, 2:50 (Jan. 1840).

tions, is to be ascribed to them: for in all ages the peasantry have been too ignorant to understand their rights, and too remote from each other to be able to withstand oppression."⁹

By the same token dire warnings were issued as to what would be in store for the United States, by calling attention to the unfavorable positions occupied by predominantly agricultural nations. "If other nations, as Spain, Portugal, Naples, &c. have neglected their manufactories, and, consequently, hold only a second or third rank among the nations of Europe, it would ill become the United States, to follow their example."10 There were nations which had "flourished by means of commerce without agriculture" as there were manufacturing countries that flourished among a people who were slightly dependent upon agriculture, but there seldom was "a people who have enjoyed for any length of time a spirited agriculture, without the aid of commerce, or manufactures, or both."11 A similar course was open to the United States; it was only hoped that as many Americans as possible would enter into it "with capital, spirit, and success."12

Despite previous reversals, demands were constantly forthcoming for a high protective tariff to promote domestic manufactures and insure the farmer a home market. The appeal made to the agrarian elements naturally was strong. They were told that they could expect little in the way of lasting prosperity if they continued to depend upon an unpredictable foreign market. Great Britain was a heavy purchaser of grain, but it was impossible to predict with any degree of accuracy the quantity that would be demanded by her over any given period of time. Neighboring nations produced more than enough to meet her needs; besides the English grain trade, it was claimed, had fallen into the hands of speculators who manipulated the market; furthermore, the economic policies of Britain, as evidenced by the repeal of the Corn Laws in 1846, had sought nothing more than "to give cheap bread, and produce halcyon days to the working-men of the whole realm" at the expense of the American farmer.13

American State Papers . . . Finance, 2:63-64.

¹⁰ Ibid., 2:63.

¹¹ Hunt's Merchants' Magazine, 2:49 (Jan. 1840).

¹² American State Papers . . . Finance, 2:674.

^{13 &}quot;The European Grain Market," American Review, 5:642-648 (June 1847). See also "Our Recent Corn Trade," ibid., 6:430 (Oct. 1847); and Calvin Colton, The Rights of Labor (New York, 1846), 13-15.

It was sheer mockery for the American farmer to seek "a steady market in England, some five or six thousand miles away," when the same could be had in his own country with the adoption of a protective tariff. The English market was too far off; likewise, "the serfs of the continent, who are contented to live upon black bread and in a hovel, can readily produce cheaper than he, and are nearer to the market.... No. The farmer wants his market, not upon the banks of the distant Thames, but upon the watercourses of his native State, upon the Illinois, the Wabash, or the Indiana." 14

The expanding market that accompanied the growth of manufactures was cited as evidence of what industrialization had to offer to agriculture. In 1846, it was estimated that the manufacturing towns and villages which sprang up from Maine to Texas consumed "about six hundred thousand bales of cotton, besides wool, leather, and various other materials. They require large quantities of flour, beef, pork, and other provisions, all of which are the productions of the neighborhood, or are obtained from the Western States; and thus ... every manufacturing town becomes a direct benefit to the farmer, by keeping up the price of his grain."15 Andrew Jackson, more than twenty years earlier, had written to an acquaintance: "Take from agriculture, in the United States, 600,000 men, women, and children, and you will at once give a market for more breadall Europe now furnishes us stuffs than with "16

Additional argument for the promotion of manufactures was found in the adverse effects that the discriminatory commercial legislation of Britain had on American agriculture. In December 1828, President John Quincy Adams told Congress: "It excludes, with interdicting duties, all importations, except in time of approaching famine, of the great staple productions of our middle and western states. It proscribes, with equal rigor, the bulk in lumber and live stock of the same portion, and also of the northern and eastern

"Whig Principle and Its Development," American Review, 15:128 (Feb. 1852).

15 Ibid., 127. See also Victor S. Clark, History of Manufacturing in the United States, 1607-1860 (Washington, 1916), 76, 317-327, 479-492; and U. S. Census Office, 8th Census, 1860, Agriculture of the United States in 1860, xliii.

16 Quoted in Colton, The Rights of Labor, 28.

part of our Union. It refuses even the rice of the south, unless aggravated with a charge of duty upon the northern carrier who conveys it to them. But the cotton, indispensable for their looms, they will receive almost duty free, to weave it into a fabric for our own wear, to the destruction of our own manufactures, which they are enabled thus to undersell.' "17

Defense needs were a tremendous force in building up American manufactures. The Revolutionary War emphasized this, as did the interruptions in American foreign trade immediately prior to and during the course of the War of 1812; but nothing better demonstrated the potentialities of an industrialized, as opposed to an agrarian. economy than did the fighting of the Civil War.18 "Without our manufacturing capacities whence could we have drawn the materials of war? Not from abroad, for there was hostility of sentiment. Who would have taken our loans? Not the capitalists of England or the Continent, for there the sympathy generally was with the other side. No, it was manufacturing and mechanical resources and the granaries of the West which enabled the republic to arm, subsist, and pay immense armies, and create iron-clad fleets to meet the emergency. It was mainly for the want of these, and not for lack of courage, will, or skill, that the revolt failed."19

A medley of forces was involved. The trials and tribulations to which agricultural nations were exposed in time of peace as well as war, rising living standards, the emergence of a strong industrial consciousness at home, and the promise of manufactures to provide bigger agricultural markets and hence higher prices for farm products contributed materially to speed the Nation along an industrial path. This industrialized complexion had become apparent the closer the Nation came to the Civil War. By 1860, the aggregate value of American manufactures had multiplied

¹⁷ Quoted in Hunt's Merchants' Magazine, 3:161 (Aug. 1840).

,18 Emory R. Johnson and others, History of Domestic and Foreign Commerce of the United States (Washington, 1915), 1:202-223; Henry Adams, History of the United States of America During the Second Administration of James Madison (New York, 1921), 2:14-15; and Harold and Margaret Sprout, The Rise of American Naval Power, 1776-1918 (Princeton, N. J., 1939), 85.

¹⁹ U. S. Census Office, 8th Census, 1860, Manufactures of the United States in 1860, vi.

ten times over a 50-year period and had reached the enormous sum of 200 million dollars, while the population, over the same period, had increased just four and one-half fold. Much of this surplus farm produce found its way into Europe and helped provide the United States with funds and credits with which to equip itself industrially. These developments strongly indicated that the American farmers had not only failed to free themselves from the vicissitudes of the foreign market, but they also gave strong evidence of making agriculture far more dependent on industry than many suspected.

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Obviously, the rapid growth of industrialization accelerated the spread of commercial agriculture. Production chiefly for market necessitated a radical departure from the methods employed under a system of subsistence farming. The practice of farming for food and fuel, with a cash crop as a means of raising the producer's standard of living above the subsistence level, sooner or later had to pass from the scene. New problems were created for the farmers. The condition of the market, transportation rates, the tariff, taxation, labor costs, machinery and fertilizer prices, credit, indebtedness, land values, foreign competition, monopolistic practices of industry, and the weather contributed in varying degrees to the profits and losses of the farmers. The management of land, capital, and labor required greater skills than ever.21 World-wide forces had greater bearing than ever on the operations of the farmers. Farming had become more than ever "an inseparable unit of an indissoluble mass . . . a part of a closely knit social body. . . . "22

Even before the wholesale transition from a

subsistence to a commercialized status, the evidence was rather strong that the financial rewards of farming would be small. Statistical data on the comparative profits to be had in agriculture and industry are either scanty or nonavailable. yet the generally accepted conclusion that farming was less profitable appears to be borne out by the little information that is available. In 1790, modest returns were available only for the "more thrifty and capable citizens," which, of course, was a far cry from satisfying the ambitions of that budding class of manufacturers whose appetites for profits had been whetted by the American Revolution.²³ In 1840, a keen observer noted: "It is but to a small extent that additional capital can be employed in agriculture in the northern or middle states, except in raising wool, or in the grazier's business, or occasionally in cultivating on a large scale. . . . "24 In 1845, the Secretary of the Treasury, Robert J. Walker, commented in his report: "It seems strange, that while the profit of agriculture varies from 1 to 8 per cent., that of manufactures is more than double." The same report quoted an observer as saying: "From 1832 to 1842, ... the profits of farming in this State. though variable, were higher than they have been since; but the reduction of profits has not been occasioned by any single cause.... at present there are too many producers in proportion to the consumers, and, of course, the profits of farming capital have, until recently, been comparatively low." A citizen of New Hampshire reported that "The annual average profits on capital employed on well-conducted farms, for the last 3 years, has been very small, if an actual loss has not been sustained. For the 10 years preceding '42 [it] was about 6 per cent. greater than for the last 3 years." A Rhode Islander noted that the returns on capital invested there were "Not more than 3 per cent. since 1842" and "4 or 5 per cent. for the ten preceding years."25 During the seventies a Granger complained bitterly that the profit of the farmer "is the smallest and the most unfair. It is not in proportion to that of the merchant or

²⁰ Ibid., iii-v.

²¹ "Afar from speculative adventures and risks of precarious circumstances, he is seldom annoyed by fluctuations of trade or fanciful turns of fashion. When the harvest arrives, he fills his barns and cribs; and his toil is rewarded in the abundance of his increase. Revulsions and panics, with sudden and overwhelming reverses in trade, find him as unconcerned as do city tumults awakened by gusts of human passion. The simple grandeur of his rural state is exempt from all complexity of business relations, and he lives free from that manifold collision of interests encompassing denizens of cities."—A. R. Rider, "Influence of Commerce Upon Law," Hunt's Merchants' Magazine, 27:148 (Aug. 1852). Cf. Edwin G. Nourse, Agricultural Economics (Chicago, 1916), 876–879.

²² Nonpartisan Leader, 1(5):6 (Oct. 21, 1915).

²³ U. S. Bureau of the Census, A Century of Population Growth, 26.

²⁴ George Tucker, "Theory of Profits," Hunt's Merchants' Magazine, 2:448 (June 1840).

Export from the Secretary of the Treasury, on the State of the Finances, December 3, 1845 (29 Congress, 1 session, Senate Document 2, serial 471, Washington, 1846), 12, 245-246, 249, 339.

the miller."²⁵ Subsequent studies revealed that "the real per-capita incomes of farm people fell behind badly from 1870 to about 1895..."²⁷ In 1901, it was reported that the capital employed in agriculture yielded a lower rate of profit than it did thirty or forty years earlier, but it was also observed that the profits in "all other industries had been falling..."²⁸

Explaining why the returns from farming were somewhat smaller than those of nonfarming pursuits presents a far more challenging task than does the enumeration of the forces which helped transform the national economy from an agricultural to an industrial base. By the same token, it is a comparatively simple task to observe the evidences of maladjustment, such as shrinking foreign markets, discriminatory tariffs, high taxes and freight costs, tenancy, poor soil, mortgage indebtedness, absentee ownership, and other such factors, than it is to explain just how and why these things came about, to evaluate the various contributing forces, and to establish their relationships to one another.

Obviously, any comparative analysis between farm and nonfarm endeavors should be made subject to certain qualifications. For one thing, there were vast differences between farming and nonfarming pursuits; in fact, there were wide differences and conflicting interests within agriculture itself, not to mention the divergencies within the commercial and industrial groups.²⁹ Likewise,

Edward Winslow Martin [James Dabney McCabe], History of the Grange Movement (Philadelphia, 1873), 295.

²⁷ John D. Black, "Agriculture Now?" Journal of Farm Economics, 9:151-152 (April 1927). Farm income began to rise from 1895 to 1919, especially during the last three years, but "agriculture had not entirely recovered by 1916 from the severe retrogression of the 1870-1895 period." Significant, however, was the fact that beginning in 1900 the production cost of farm products began to rise faster than did farm prices.

* U. S. Industrial Commission, Report, 10:xi.

** Farming, compared with industrial and commercial enterprises, was essentially a family enterprise; it was affected more by climatic conditions than were the latter; a longer time was required for a turnover in the investment of the farmer; and agriculture had a more difficult time effecting economies in periods of low prices and had credit problems that differentiated it from other enterprises.

See Arthur F. Burns, Production Trends in the United States Since 1870 (New York, 1934), 212-213, for a one should guard against assuming that everyone entering into farming was a failure or for that matter that everyone entering industry or commerce was a financial success. Caution should be exercised against reading into the past what has become obvious only recently. Also to be kept in mind is the fact that the farmers, judging from their organizations, and not those of business, commercial, and financial groups, had explanations to offer for their difficulties which varied from period to period, from organization to organization, from region to region, and from commodity to commodity. The state of the state

The effort to explain how the farm problem came about in terms of its relationship to the rest of the economy, however, has certain compensations. It does make more apparent the growing interdependence between agriculture and industry and and emphasizes the vast differences in the production and distribution policies, which had much to do with profits and losses. Perhaps it was a great mistake for the farmers, on the whole, to think that their special "way of life" was adaptable to capitalistic methods of production and distribution, yet the fact is that they did believe so and actually made the effort.

Ostensibly, the land policies were intended to benefit agriculture, but history bespeaks the fact

brief description of the competition among the various farm commodities. The Conference on Unemployment, Washington, D. C., 1921, Committee on Recent Economic Changes, Recent Economic Changes in the United States (New York, 1929), 1:82-83, presents in a brief but suggestive form the heterogeneity of industry. In ibid., 2:549-550, Edwin G. Nourse said: "There is always danger of talking about 'the farmer' and 'American agriculture' as a unit. In a large and diversified country, differences in type, activity, and situations are numerous and extreme-so much so, in fact, that a properly special account of the several branches of our agricultural industry involves a diversity of details quite unmanageable in a discussion of the present scope. We must content ourselves with the broad outlines of major factors which apply somewhat generally over the country."

30 U. S. Treasury Department, Statistical Abstract of the United States, 1902, 428.

²¹ Frank M. Drew, "The Present Farmers' Movement," Political Science Quarterly, 6:290 (June 1891); W. F. Mappin, "Farm Mortgages and the Small Farmer," ibid., 4:449 (Sept. 1889); C. Wood Davis, "Why the Farmer Is Not Prosperous," Forum, 9:241 (April 1890); Patrons of Husbandry, National Grange, Journal of Proceedings, 1894, 14-24.

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that they were geared to meet the interests of the railroads, the speculators, the politicians, and others, which in the final analysis worked irreparable damage to farming.32 The protective tariff, regardless of the industrial and commercial groups it benefited or harmed, affected the rank-and-file farmer adversely.33 The fact that industrialists and businessmen represented a keener and more select group than did the farmers was no mean point in the quest for profits;34 they were more influential in shaping the complexion of the modern economy than were the farmers who were repeatedly heralded as the backbone of the Nation and the guardians of its liberties.35 The cheap raw materials of agriculture were as indispensable to low production costs for industry as was unrestricted immigrant labor.36 Unwise investments were often made.37 Agriculture had nothing comparable to the production and pricing policies of the manufacturers.38 The antiquated tax structure weighed heavily and unjustly on it.39 Producers of wheat and cotton were extremely vulnerable to the forces of world supply and demand.40 The raw products of agriculture did not command the premiums that the finished products of industry did, nor for that matter did the labors of farmers command the rewards that those of

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³² Benjamin Horace Hibbard, "Land Grants," Encyclopaedia of the Social Sciences, 9:32-36 (New York, 1933), and his A History of the Public Land Policies (New York, 1924), especially 539-546 on "Effects of the Land Policies on Agriculture." See also Paul Wallace Gates, "Land Policy and Tenancy in the Prairie States," Journal of Economic History, 1:60-82 (May 1941).

³³ National Grange, Journal of Proceedings, 1894, 15; Henry J. Fletcher, "The Drift of Population to Cities: Remedies," Forum, 19:745 (Aug. 1895). According to a New Englander, "The Farmers' Grievance," Nation, 17:112 (Aug. 14, 1873), the tariff crippled about 380 out of the 390 manufacturing and industrial occupations listed in the census.

34 Emerick, in Political Science Quarterly, 11:447.

²⁸ For a typical farmer attitude on this point, see the California Patron, 4(12):5 (San Francisco, May 24, 1879).

80 Raguet, The Principles of Free Trade, 19, 150.

³⁷ J. Laurence Laughlin, "Causes of Agricultural Unrest," Atlantic Monthly, 78:583-584 (Nov. 1896).

28 California Patron, 4(5):6 (Feb. 1, 1879).

⁸⁹ Emerick, in *Political Science Quarterly*, 11:632-639 (Dec. 1896).

⁴⁰ U. S. Industrial Commission, Report, 19:146 (Washington, 1902). industry and business did.⁴¹ Obviously, a combination of complex and interrelated forces, defying solution, which varied from farm to farm, from commodity to commodity, and from period to period, but in direct relation with the rest of the economy contributed to make farming less profitable, if not downright unprofitable.

Part of the answer for the unprofitableness of farming is to be found in the rapid territorial expansion-the land-grant, immigration, and irrigation policies that encouraged people to take to the land without regard for the fact that they accelerated agricultural production beyond all reasonable market demands.42 Land was far more indispensable to agricultural production than it was to any other industry, and the farmers should have been entitled to a strong voice in its disposition and the future policies that were adopted with respect to it.43 But agriculture, which had a great stake in the land policies adopted, as a unit was either indifferent, ignored, forced, or misled into policies that in the long run proved ruinous. The railroads, the real estate speculator, and financial, industrial, and manufacturing interests which stood to profit from the rising land values, the new opportunities for investment and markets for manufactured goods, and the availability of large quantities of raw materials, were consulted and their counsels often prevailed.44 The net result was the overexpansion of an already overexpanded agriculture. A New Englander who had looked

⁴¹ Emerick, in *Political Science Quarterly*, 12:111 (March 1897). On this point Adam Smith was quoted in "To the Farmers of America," *American Review*, 15: 191 (March 1852).

42 Erwin Graue, "Agriculture Versus Urban Enterprise," Journal of Farm Economics, 11:619–620 (Oct. 1929); "The Farmers' Grievance," Nation, 17:112 (Aug. 14, 1873); Frank W. Taussig, The Silver Situation in the United States (New York and London, 1893), 104. Charles Abrams, Revolution in Land (New York and London, 1939), 15, states that "At no time in our history was the relation of agricultural productive capacity to probable demand ever seriously considered as an element of land grant policy." According to the U. S. Commissioner of Patents, Report, 1852, Part 2, Agriculture, 4, "Productiveness of crops and destructiveness of soil are the two most prominent features of American agriculture."

43 Thomas Nixon Carver, Principles of Rural Economics (Boston, 1911), 117.

"Gates, "Land Policy and Tenancy in the Prairie States."

upon the western areas as the resources for future generations rightly labelled as "all-wrong" their being thrown open as rapidly as they were to an exhaustive system of husbandry. In similar vein the *Nation* said: "The great depreciator of agricultural credit in this country is the Government, which lets a man have a farm for a song."

One must not confuse an agricultural producer with a landowner. It mattered little whether the producers were the real or the nominal owners of the land, tenants or share croppers; the fact was that it was possible for all of them to raise crops for market in any of the mentioned capacities, and there was little that could be done to check them. Easy access to land, provided of course that economic considerations were met satisfactorily, was a part of the American heritage and the placing of restrictions upon such entries would have militated against one of the Nation's most cherished traditions. One could lose his land, farm house, livestock, implements, machinery, and supplies, but still turn around and become a tenant holding from a bank, an insurance company, a mortgage firm, or a farmer, and continue to produce crops for the market as he did when he owned his farm. This happened time and time again. Capital needs and managerial experience, especially among cotton and grain growers, were hardly the deterrents to producing for market that they were among manufacturers and industrialists.47 Farming also was one of those very few occupations where people of "mediocre ability and lack of thrift can manage to eke out an existence" and "contribute to the world's food supply." Perhaps this would not have been as bad as it actually was because such production had an injurious effect on "the better-directed labors of men" who possessed "more than average skill and intelligence" and who consequently were "less amply rewarded than those . . . of the same ability in other walks of life."48

The application of farm machinery to agricultural production aggravated the effects of this uncalled for expansion. Agriculture lost nearly 3,500,000 workers from 1870 to 1900, but in no

sense was the efficiency of the farm worker impaired. In 1900, the farmer was 86 percent more efficient as a producer than he was in 1870. From 1830 to 1895, production in the nine leading crop-producing States increased nearly 500 percent. Barley production, for instance, increased 2,244 percent. The capacities to produce foodstuffs, contrary to the predictions of Malthus, greatly outstripped the capacities to consume them. 50

This overexpansion was aggravated by the fact that the farmers represented millions of small-unit producers who were incapable of applying the mass production and distribution methods of industry.51 Farming, in general, was unlike other enterprises in that the cost of production did not necessarily decrease as the size of the operating unit increased.52 It was true that insurance companies, mortgage houses, and financial institutions had gained title to an increasing number of farms and that tenancy and absentee landownership had increased, but at best there was only a remote chance a General Motors, a Henry Ford, or a United States Steel of American agriculture coming into being to bring to the average farmer the advantages that generally followed in the wake of combinations and consolidations in industry.53

It was dead wrong for the farmers to produce for the market without taking into account what other farmers were doing, but the fact was that many, if not most, farmers farmed after this fashion. The prices received depended upon what

Emerick, in Political Science Quarterly, 11:436.
 Statistical Abstract of the United States, 1904, 509

⁵¹ Statistical Abstract of the United States, 1904, 509, provides the following data:

Year	Number of Farms	Average Number of Acres to a Farm
1850	1,449,073	202.6
1860	2,044,077	199.2
1870	2,659,985	153.3
1880	4,008,907	133.7
1890	4,564,641	136.5
1900	5,737,372	146.2

⁸² Charles Whiting Baker, Monopolies and the People (New York and London, 1889), 127.

⁴⁵ Report of the Tariff Commission (47 Congress, 2 session, House Miscellaneous Documents, serial 2117, Washington, 1882), 2:1498; hereafter this document is cited as Report of the Tariff Commission . . . 1882.

⁴⁶ Nation, 21:157 (Sept. 9, 1875).

⁴⁷ U. S. Industrial Commission, Report, 10:xv-xvii.

⁴⁸ Emerick, in Political Science Quarterly, 11:446-447.

⁴⁹ Hadley W. Quaintance, "The Influence of Machinery on the Economic and Social Conditions of the Agricultural People," in L. H. Bailey, ed., Cyclopedia of American Agriculture (New York, 1909), 4:109.

⁵³ American Farm Bureau Federation, Democracy Demands United Action (a leaslet, n.p., n.d.); U. S. Industrial Commission, Report, 10:clx.

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all farmers, not on what the individual, produced; but even if they realized this fact it was difficult, if not impossible, for them to thin out competition; the result was that there developed a mad scramble among millions of atomistic units of production to increase their output, as a result of which the individual producers hoped to increase their share of the total farm income. This was hardly a tolerated practice among manufacturers, and one observer urged that it was to the interest of the farmer "to supply the actual demands of the market, at prices that will give him a fair renumeration [sic] for his labor, and capital invested." If, by a stretch of the imagination the manufacturers were to place on the market "an unlimited supply of their products, and allow the purchasers to fix the prices upon their reapers, separators, plows, wagons, etc., the dullest of business intellects would exclaim, that it was only a question of time, before they would become bankrupts." But this was the very thing that the farmers had been doing, and the curbing of such practices appeared remote indeed. One agrarian posed the question: "Can farmers conduct business successfully, except on business principles? Can they continue to force their products upon the market in excess of its requirements, and succeed?"54

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Many farmers had overexpanded their operations not only beyond their means but also beyond what might well have been considered reasonable expectations for profit. If the findings of one researcher are accepted, some 83 percent of the mortgage debts contracted during 1880-1890 had been incurred "to enable debtors to buy lands, erect buildings and make other improvements, and that more than ninety-four per cent of it represents durable property." This growing indebtedness was confined mostly to the wealthier, not the poorer, farming districts which, in large measure, reflected an optimistic outlook. There appeared no plausible explanation for these new investments other than hope and confidence in the future of farming, but for which there was no substantial basis. Certainly the period from the Civil War to 1897 was not profitable, at least from the standpoint of remunerative farm operations.55 Much of this indebtedness, it seems, had been encouraged by eastern creditors who had "sent unlimited sums, with reckless confidence, to be loaned on Western farm mortgages." They exercised little discrimination in lending. Many farmers "were led into plans for expenditure without fully realizing the risks of farming, the operations of world-causes upon agricultural prices, or the difficulties of repaying loans after they were spent." The rates of interest charged, to be sure, were high, still they did not necessarily impede the obtaining of loans, the majority of which were made for additional farm properties. If interest rates were lower, this conceivably could have encouraged additional unwarranted expansion and speculation among farmers. There were, no doubt, legitimate credit needs and especially where opportunities prevailed, but a good deal of the money borrowed was invested in additional lands which were held for advances in price or in further unprofitable farming operations.⁵⁶ Altogether too many farmers ignored the simple economic rule of "Whoever invests unwisely, or produces too dearly, is ruined."57

For the farmers to curtail production after the fashion of industry during slack seasons, and hereby effect savings, was exceedingly difficult, if not impossible. Manufacturing was carried on by a comparatively smaller group of producers, as against the millions of farm operators in the United States and the untold millions of farmers in other parts of the world who produced cheaply and competed with one another recklessly.58 Industry, as a rule, faced a drop in production during slack years, while agriculture, especially in the face of distress in urban areas, could readily serve as a place of refuge for unemployed city workers. Depressions have brought back-to-the-land movements. By taking to the land, people at least had the opportunity of raising some food for sustenance, whereas no such opportunities prevailed in the cities. This added rather than detracted from the total production. 59 Another

Eaughlin, "Causes of Agricultural Unrest," 579, 582-583. In 1900, 50.6 percent of the land in farms was unimproved, according to Statistical Abstract of the United States, 1902, 506.

⁵⁷ Ludwig von Mises, Socialism (New York, 1932), 438.

⁸⁸ Baker, Monopolies and the People, 126-129; California Patron, 4(5):6, (11):7 (Feb. 1, May 10, 1879).

⁵⁰ George McHenry, The Cotton Trade (London, 1863), 135, states that "The panic of 1837 caused the people to return to their regular occupations as farmers..." This shift was evident during the depression years 1929–1933. See also Frederic W. Speirs, Samuel

⁵⁴ California Patron, 4(5):6 (Feb. 1, 1879).

Emerick, in Political Science Quarterly, 11:601-602, 626-628.

thing, the average farmer depended upon the labor of his family, except perhaps at harvest time when additional help had to be employed; hence, there was no point to his laying off members of the family to effect savings. The farmer had to support his family whether it worked or not; besides, there was no telling what would happen by harvest time. It appeared sensible, and just as cheap, to produce more as it did to produce less. The tragedy was that, while production was maintained and the operating costs remained the same, the returns to the farmer dwindled while his interest payments, his mortgage, taxes, and other debts, loomed larger than ever.

The want of managerial talent among farmers was an additional cause for the unprofitableness of farming.61 This was no mean point in view of the fact that the normal profits in farming were modest, even for the most skilled entrepreneurs. Commercial farming, for one thing, laid bare the want of managerial talent among farmers. Farming was a complicated business, ever in need of managers capable of directing their land, capital, and labor in a profitable manner.62 The bulk of the farmers kept no records of their costs, 63 and the marketing side was neglected for the most part. People with capital and abilities normally found more profitable fields for investment than farming.64 It was suggested that one could invest his money in government bonds and make just as much, if not more, than he could in farming and without assuming the responsibilites that farming normally entailed. Even the most cursory examination leaves little doubt but that the more competent managers, the type required to provide farming with a margin of profit, shunned agriculture and went into industry and business.65

One of the most pronounced evidences of this

McCune Lindsay, and Franklin B. Kirkbride, "Vacant-Lot Cultivation," Charities Review, 8:74-107 (Apri, 1898).

- 60 Emerick, in Political Science Quarterly, 12:113.
- 61 U. S. Industrial Commission, Report, 10:1xxxv.
- ⁶² Edward F. Adams, The Modern Farmer in His Business Relations (San Francisco, 1899), is a good treatment of the problems of the commercial farmer.
- Andrew Boss, "Forty Years of Farm Cost Accounting Records," Journal of Farm Economics, 27:1-17 (Feb. 1945).
 - 44 U. S. Industrial Commission, Report, 10:xiii.
- The Granger publication, California Patron, 4(12):5 (May 24, 1879), summed up the situation thus: "This, then, is the whole story. The mass of farmers do not have in their ranks as good timber, as regards avail-

superiority in personnel was found in the fact that the industrialists, businessmen, or their representatives were, more likely than not, to be on the long end of the bargaining counter, whether they matched wits with the farmers in the market place or in the halls of Congress. The former, besides being more cosmopolitan and enterprising, were also freed from the dead weight of custom and tradition; they were better-equipped financially and psychologically; they represented a dynamic industrialism, were alive and thriving, were in a better position to exchange ideas with the most diverse elements in society, had a better knowledge of market conditions, finance, weights and measures, geography, law, insurance, legislative wirepulling, and likewise possessed a keener appreciation of the need for organization and discipline.66 This simply substantiated the conclusion that the most progressive elements in the modern economies were found among the general industrial interests and "the least so, [among] the extractive or raw material industries. . . . "67 These superior capacities enabled them to discharge heavy responsibilities and provide against contingencies, to outsmart and outmaneuver the farmers any time they chose to do so. If they, themselves, did not have the brains to do all these things, they, at least, had the money with which to hire them. This superiority was displayed repeatedly in the fields of production and distribution, and especially in the latter which was so important in an exchange economy.68

ability, as they ought in all sincerity, to have. It is not honesty or industry which they lack. But, in a large degree, the farmers and the farming community need more strict training in business habits and business modes of thought.... The truly successful and honored farmers, a class increasing every year, conduct their affairs on the same exact principles which regulate banking, or the Japan tea trade, or any other solvent business."

66 Charles Edwards, "What Constitutes a Merchant," Hunt's Merchants' Magazine, 1:289-295 (Oct. 1839).

⁶⁷ Edward D. Jones, "The Manufacturer and the Domestic Market," in International Congress of Arts and Science, St. Louis, 1904, Congress of Arts and Science, Universal Exposition, St. Louis, 1904, ed. by Howard J. Rogers, 7:116 (Boston and New York, 1906).

68 William J. Ashley, Surveys Historic and Economic (New York and Bombay, 1900), 418, says "It is a commonplace to say that while in Germany the government gets most of the best brains, and industry and commerce relatively few, in America it is industry and commerce that are most attractive."

The agrarians of the first half of the nineteenth century had a better grasp of the injurious effects of the protective tariff than did the western farmers of the latter half who "fell" for the protectionist argument repeatedly. It appears unfortunate that the tariff question of the pre-Civil War period has been treated altogether too much as a constitutional and political issue and that insufficient attention has been devoted to the adverse economic effects that it had on agriculture. Secession, Civil War, and the solid entrenchment of industrialism in the Nation's economy helped place the stigma of disloyalty on the low tariff arguments and thereby obscured many sound arguments against discriminatory protection. If the South was the first to protest against the protective tariff, it did so because commercial agriculture had reached its highest point there. It was not idle talk when Robert J. Walker, Secretary of the Treasury, warned the westerners that they would be among its victims. 69 The tariff did foster the growth of combinations that placed the farmers at a disadvantage when they bargained with them. The producers, because of these combinations, directly or indirectly got lower prices for their cotton, grain, and tobacco and paid higher prices for what they purchased.70 In 1882, it was claimed that the farmers paid a duty of 331 to 60 percent "on all articles consumed and on all articles or farm implements used by him."71 Price increases were felt on "iron and steel articles, especially wire fencing and nails," also on "lumber and other building materials."

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The protective tariff on industrial products had disastrous effects on the foreign market of the farmer.⁷² Farm products had figured prominently

** Report from the Secretary of the Treasury... 1845, 13; McHenry, The Cotton Trade, 137. The South had been commercially important because of its tobacco, rice, and cotton.

⁷⁰ John Bates Clark, The Problem of Monopoly (New York, 1904), 87.

¹¹ Report of the Tariff Commission . . . 1882, 2:1259. See also U. S. Industrial Commission, Report, 10:lviii, ccclxx.

¹² Report of the Tariff Commission... 1882, 2:1260, says: "Already Bismarck, for Germany, is trying to impose duties upon our produce, and France, under the pretext that our pork is unhealthy, has shut it out once from its borders. An effort is being made in England to tax the cotton of the South, with a view of helping the British East India colonies, and also have increased the duties on tobacco from about 72 cents per pound to 82 cents. Our country is now seriously menaced by plans of this character."

in the American export trade during the first half of the nineteenth century; cereals, livestock products, cotton and tobacco, in particular, found an almost insatiable market abroad; the year 1898 marked the high point. Goods went to Europe without the United States having received an equivalent in kind, because it was a debtor nation and European countries were its creditors. By 1910, this traffic, except for cotton, tobacco, and fruits, had fallen to the export levels of the 1880s, partly because the American tariff policy had made it impossible for these nations to sell goods to the United States. There was a sharp drop in the percentage of European goods shipped into the United States; they fell from 60 percent of the total in 1860 to 30 percent in 1910. The United States still needed foreign goods, finished and raw, but the source for these, especially the raw materials, was largely non-European. Partly in retaliation, Europe turned "to Canada, Argentina, and Russia for grains; to Argentina for meat; and to Australia and New Zealand for sheep and dairy products."73

Reprisals hardly provided a full accounting for the measures adopted by the two leading western European powers; their agricultural policies were geared to fulfill political and military exigencies, one result of which was a diminishing need for American farm products. In Germany and France, tariff barriers had been erected to keep foreign products out and to stimulate agricultural production and trade. German producers had suffered serious losses in their own domestic market because of the rapid growth of the farming areas of the world, the cheaper transportation facilities, and the keener competition that followed. The German tariff act of 1902 was intended to benefit German agricultural producers by raising the import duties on grain, livestock, and meats and by decreasing the duties on articles used by the agriculturists. During the eighties, the French also had clamored for protection from American agriculture because they had felt the competition of American wheat and cattle producers. By 1892, agricultural duties had been raised by 25

⁷³ Arthur P. Chew, "The Meaning of Foreign Trade for Agriculture," U. S. Department of Agriculture, Yearbook, 1940, 571-573. See also O. P. Austin, "Imports and Exports of Agricultural Produce," in L. H. Bailey, ed., Cyclopedia of American Agriculture (New York, 1909), 4:18-19.

percent to foster a high degree of self-sufficiency, especially for the wheat growers.⁷⁴

Whereas the protective tariff shielded domestic manufacturers from foreign competition and enabled them to keep prices up, the American farmers suffered from the twin effects of a diminished foreign market and the payment of high prices for the goods they purchased. An effective device to protect the cotton and wheat growers, especially from foreign competition, could not be worked out; the prices for such staples depended heavily on foreign and domestic demand; scarcity abroad enhanced domestic price levels, and an abundance depressed them. It

In effect, industry obtained a type of federal aid that temporarily, at least, proved more remunerative and conducive to the stability of industrial profits than anything that could be provided for agriculture; yet, instead of it being branded as socialistic, a dole, or paternalism, it was heralded as a milestone in the triumph of free enterprise, private initiative, and individualism.77 The industrialists, aided by government favors and advantages that were inherent in their systems of production and distribution, succeeded in eliminating competition from abroad and among themselves, captured most of the domestic market, and had some degree of success in manipulating prices to their advantage. Still all the while they eliminated competition from abroad and among themselves, they succeeded in selling to the public the idea that competition was at the very basis of

⁷⁴ Frederic Austin Ogg, Economic Development of Modern Europe (New York, 1923), 289-292, 305-310; and Witt Bowden, Michael Karpovich, and Abbott Payson Usher, An Economic History of Europe Since 1750 (New York, 1937), 622-623.

75 In the Report of the Tariff Commission... 1882, 2:1494, one farmer pointedly asked: "Why this favoritism, this domination of one interest to the prejudice of all others, and this is a minor interest?"

76 U. S. Industrial Commission, Report, 19:146.

²⁷ Alden Bradford, "The Comparative Importance of Agriculture, Commerce, and Manufactures," *Hunt's Merchants' Magazine*, 1:472-476 (Dec. 1839).

William Graham Sumner was right in treating the protective tariff as but a type of government intervention. The industrialists wanted to "be saved from the trouble and annoyance of business competition, and that they be assured profits in their undertakings, by 'the State,' that is, at the expense of their fellow-citizens." See his *The Forgotten Man and Other Essays*, ed. by Albert Galloway Keller (New Haven, 1918), 79.

prosperity and success.78 The farmers, aided and abetted by the very nature of farming, took this altogether too literally;79 whereas, the industrialists, generally speaking, who had shouted to the roof tops about the need for preserving competition were among those who did the most to kill it.80 The farmers paid a heavy price for operating under a system of free competition. The aid they obtained from the Federal Government was to stimulate their productive powers as much as possible, and whatever assistance they received in the field of distribution was had at a comparatively recent time. 81 Any program that had as its objective the raising of farm prices was more likely than not to be resisted to the bitter end by industrialists who were naturally opposed to higher production costs and by consumers who wanted food prices at the lowest possible levels. "Competition as an automatic regulator of economic life was breaking down at many points. . . . Competition could no longer be relied upon to enable each person to secure his fair share of the product of industry, and there was nothing left but government interference in some form or other."82

The railroads and transportation costs invariably figured prominently in the plight of the farmers. When the farmers failed to realize the returns that they had expected to follow in the wake of an expanding transportation system, they blamed

⁷⁸ Colton, The Rights of Labor, 92-96, presents a good summary of the protectionist argument.

79 In 1900, there were 5,737,372 farms, according to the U. S. Department of Commerce and Labor, Statistical Abstract of the United States, 1904, 509. See also Harold Barger and Hans H. Landsberg, American Agriculture, 1899–1939 (New York, 1942), 3, 6, where it is pointed out that "Manufactured commodities are derived from fewer than 200,000 establishments, some of them very large indeed, whereas there are . . . over 6 million farms, the average size being about 160 acres."

80 See Arthur Robert Burns, The Decline of Competition; A Study of the Evolution of American Industry (New

York and London, 1936), 1-21.

si Benjamin Horace Hibbard, "A Long Range View of National Agricultural Policy," Journal of Farm Economics, 16:14 (Jan. 1934), says: "In so far as we had a national agricultural policy preceding the World War, it consisted of a plan to cultivate more land; to increase crop yields; to make livestock and its products healthier and more healthful; to market products more economically; to live, as farmers, better and more cultured lives."

See Guy S. Callender, "The Position of American Economic History," American Historical Review, 19:84

(Oct. 1913).

the roads for many of their difficulties. The failure to attain the profits that had been anticipated came as a sort of anticlimax; in fact, their disappointments were exceeded only by their anticipations. They had expected the railroads to work miraculous powers on agriculture; the railroads were to bring "the city into the country," provide commercial, cultural, and educational opportunities, attract a choicer class of immigrants, cheapen transportation costs, encourage agricultural production, and "double, treble, quadruple, and quintuple the worth of grain lands near where they run" as had been "the case in Ohio, Michigan, Indiana, Illinois, Wisconsin, and Canada."83 Most of these things did happen, except for the all-important bettering of the economic position of the farmer. The roads did bring the advantages of the city to the farm; they did bring about lower freight rates and enhanced the value of the land; still the farmers were no better off than they had been before. As long as land values rose, it was possible for many farmers to show some net gains, but not necessarily because of profitable farming operations, especially on the part of those who had purchased their land cheaply. Certainly, those who bought land at high prices had a hard time showing a profit unless they possessed rare managerial and business abilities and had a high degree of good fortune.

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A point in need of greater emphasis was that the railroads scattered farmers over vast stretches of territory that were far removed from important marketing centers and sources of supplies.84 This diffusion was a concomitant part of agriculture, both in its pioneer and more settled stages, and the farmers by a combination of circumstances and sheer ignorance became its victims. If farming was to be a successful business enterprise, as many had expected, it was incumbent upon the farmers as producers and purchasers to give first consideration to the proximity of their principal points of distribution and purchasing. The industrialists had learned that the localization of their establishments was of tremendous importance; 85 but the farmers, generally speaking, could

hardly be as selective because of the very nature of their business.

Historians have repeatedly attributed the plight of the farmers, at least in part, to high freight rates, yet available figures show conclusively that the rates dropped drastically during the last half of the nineteenth century, while the farmers' returns failed to show anything commensurate with the drop in rates.86 Many farmers attributed the sagging prices to these alleged extortionate rates, but by so doing they overlooked the fact that it was these lower rates that had made it possible for them to reach markets which formerly were considered incredible.87 In 1886, for instance, cattle were shipped 2,000 miles and more, and wheat and other grains worth half as much per ton, were sent in immense quantities 1,500 to 1,800 miles, because of rates that in many other countries would have been considered incredibly low.88

This was the argument of Charles F. Adams, Jr., who asserted that farmers had little to gain from low rates because they would have the effect of extending the areas from which supplies could be drawn and thus bring millions of more producers and acres into competition. Many farmers, who for unexplained reasons had expected their products to be carried unreasonably long distances and still be entitled to a profit, never grasped the significance of this argument. After all, there was a point beyond which the freight charges would eat up the entire worth of the transported article. especially if it was bulky and of small intrinsic value. Adams took the case of corn as an example: that of ordinary value, for instance, in the past had been shipped over a common earth road for a distance of only 165 miles before its money value was consumed by the cost of transportation, whereas by rail it could be carried some 1,650 miles.89 This illustration could be applied to other commodities. If the arguments of Adams are accepted, and had mismanagement, corruption, and price discriminations been kept at a minimum, the resulting even lower rates simply would have served to increase the acreage by that much more, bring additional foreign and domestic producers into competition, and thereby depress farm price levels even more.

⁸³ Hunt's Merchants' Magazine, 31:508 (Oct. 1854).

Nation, 17:68-69 (July 31, 1873); and "The Farmers' Grievance," ibid., 17:112 (Aug. 14, 1873).

⁸⁵ U. S. Industrial Commission, Report, 10: ccxcvii-ccci; and especially John D. Black, Introduction to Production Economics (New York, 1926), 252-541.

⁸⁶ U. S. Industrial Commission, Report, 10:ccci-ccciv.
⁸⁷ C. F. Adams, "The Granger Movement," North American Review, 120:422 (April 1875).

⁸⁸ Encyclopaedia Britannica, 20:254 (ed. 9, 1886).

⁸⁹ Adams, "The Granger Movement," 414.

Besides the lower freight rates which contributed to this ruinous competition, the evidence is that the farmers became the victims of a system of taxation that was far more suitable for the first half of the nineteenth century than it was for the second. When a uniform tax was introduced on all property, "the wealth of the country consisted almost exclusively of real property, and of such personal property . . . which could not readily be concealed. Cattle, horses, and farming implements...comprised a large portion of the personal property." It was comparatively easy then "to assess to each man all his property, and to tax all in proportion to ability to pay taxes. This was then easier for landed property than now, as owing to its comparatively small value and uniformity, it answered practical purposes fairly well to divide it into a few classes and to tax each one at one uniform rate." But during the nineteenth century, the number of banks, railroads, and manufacturing, commercial, and industrial concerns had increased, as did the quantity and the value of the stock they issued. The more personal property increased in value, the more readily did it evade taxation. The bulk of this personal property was located in cities, which, in effect, meant that its owners bore a proportionately smaller share than did the agriculturists who could not easily hide their belongings from tax assessors. 90

Agriculture suffered from heavy taxation in other respects. Early in the history of the Nation, the responsibility for schools and the building and maintenance of roads fell heavily on the rural communities. Farmers were also taxed for roads used by others who did not pay for them in the proportion in which they used them.⁹¹

Professor Edwin R. A. Seligman summarized the position of the farmers correctly when he wrote: "Those who own no real estate are in most cases not taxed at all; those who possess realty bear the taxes for both. The weight of taxation really rests on the farmer because in the rural districts the assessors add the personalty, which is generally visible and tangible, to the realty, and impose the tax on both.... What is

⁹⁰ Charles J. Bullock, Selected Readings in Public Finance (Boston, 1906), 208-212; and U. S. Industrial Commission, Report, 10:lix, ccclxxxvii, ccclxxxix, 247, 248, 278, 811.

³¹ Benjamin Horace Hibbard, "Taxes a Cause of Agricultural Distress," *Journal of Farm Economics*, 15: 9-10 (Jan. 1933).

practically a real property tax in the remainder of the state becomes a general property tax in rural regions. The farmer bears not only his share, but also that of the other classes of society."92

Farming, in effect, was unprofitable, despite the multiplication of factories, the enactment of tariff legislation, and the building of railroads. This unprofitableness was brought about by overexpansion and high production costs (labor, fertilizer, interest, transportation costs, taxes, etc.), a dwindling foreign market, discriminatory tariff legislation, a ruinous competition, cheap transportation rates, the neglect of the marketing side of farming, and inequitable tax burdens. The evidence appears strong that rising land values and the prospects for speculating in lands had encouraged many to attempt to supplement their dwindling incomes by making additional purchases, to invest unwisely in making improvements, and to buy too much machinery. Low prices, high costs, debts piled up from unwarranted investments, and crop failures aggravated their condition. This combination of forces contributed in large measure to reduce the net returns of farming, forced many agriculturists further into debt if not bankruptcy, made it more difficult for them to rise from the tenant into the landowning class, compelled many to migrate to the city, and brought forth a series of demands. 93

The tardiness of the farmers to organize to promote and defend their interests was hardly to be attributed solely to sheer ignorance and indifference on their part. The fact that they felt the twin effects of the industrial and agricultural revolutions later partly contributed to this. This, in itself, had enabled industry for instance, with some degree of success, to organize first, while the farmers, for the most part, lacking the advantages of concentration, remained scattered and isolated. Labor, though unsuccessful for the most part, also struck out to defend itself through the medium of organization before the farmers had started to stir. The promote the farmers had started to stir.

But it was the major nonfarming interests, other than the wage earners, who got the head start and pursued policies that either resisted or

⁹² Edwin R. A. Seligman, Essays in Taxation (ed. 8, London, 1913), 25.

⁵³ Emerick, in Political Science Quarterly, 12:114-115.

³⁴ For instances of early organizations in industry, see Clark, History of Manufactures in the United States, 280-281, 455, and 458.

⁸ Benjamin Horace Hibbard, Marketing Agricultural Products (New York, 1921), 188-190.

checkmated the demands of the farmers, if not to steer them into dubious channels. Industry, sensitive to the benefits of organization, obtained more than adequate representation in the major political parties and in the councils of government; it exercised influence on the press, educational institutions, and other agencies which molded public opinion; the abilities of industrial groups to obtain a high protective tariff and evade assuming a fair share of the tax load was attributable partly to the potency of their arguments, the effectiveness of their pressure group activities, and the confusion and maladjustments created by the transition from an agricultural to an industrial economy. 96 Cheap raw materials from agriculture were as indispensable to low production costs for industry as was a cheap labor supply; hence, the more effectively organized the various industrial interests became, the assumption is, the greater became their resistance to demands for higher farm prices and lower industrial tariffs. Perhaps what ensued was a form of domestic imperialism. Perhaps the anti-protectionist argument of the first half of the nineteenth century was not too far wrong when it envisaged that industrialism and the protective tariff would result in restrictions, prohibitions, and curbs on agriculture similar to those which the English had inflicted, or attempted to inflict, on the Thirteen Colonies with a questionable degree of success. 97

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Again, the fact that the farmers' organizations failed to assume national dimensions until after the Civil War, neither precluded the existence of such bodies, nor necessarily implied that the farmers and their spokesmen were exactly unaware of the problems created. 98 There were organizations prior to that time, but they were local and

This sentiment was expressed in the Report of the Tariff Commission . . . 1882, 2:1494, as follows: "It is an undisputable fact, demonstrated by its fruits, that this class have aggregated to themselves more than their share of the national wealth; they are in the ascendant in government, a privileged class, fortified in their position by dominant political fallacies, and appeals to the laboring classes."

For an 1845 version, see Report from the Secretary of the Treasury . . . 1845, 12-13.

⁸⁷ A. M. Simons, Social Forces in American History (New York, 1920), 87-88; and H. C. Carey, Letters to the President, on the Foreign and Domestic Policy of the Union... (Philadelphia, 1858), 120-122.

88 By the 1850s, the southern planters had started

state-wide in character, concerned largely with production, and for the most part ineffective. ⁹⁹ In 1858, according to the annual report of the Commissioner of Patents, there were in existence some 912 organizations of various types: 799 were classified as agricultural, 43 as horticultural, and 70 as agricultural and mechanical. ¹⁰⁰ There also was a considerable awareness on the part of many of the relationship to agriculture of such matters as overproduction, ¹⁰¹ the tariff, ¹⁰² currency ¹⁰³ and marketing problems, ¹⁰⁴ transportation rates, ¹⁰⁵ the surplus, ¹⁰⁶ soil destruction, ¹⁰⁷ the foreign mar-

to think in terms of what many American farmers were thinking of, or doing, during the last half of the nineteenth century and the early decades of the twentieth. See the following articles in De Bow's Review: "Cotton, and Its Cost of Production," 10:568-571 (May 1851); "Cotton and Its Prospects," 11:307-313 (Sept. 1851); "Cotton Planters' Remedy for Low Prices," 12:73-74 (Jan. 1852); "Crop and Supply of Cotton," 12:76-81; "Cotton Planters' Convention," 12:110-111; "The Macon Cotton Planters' Convention," 12:121-126 (Feb. 1852); "The Cotton Trade," 12:185-192;" Organization of Cotton Planters for Obtaining Statistics of Growing Crops," 13:294 (Sept. 1852); and "What It Costs To Get the Cotton Crop from the Plantation into the European Market," 13:301-302. See also U. S. Census Office, 8th Census, 1860, Agriculture of the United States in 1860, xli-xliv.

90 It was rightfully stated in the Illinois State Agricultural Society, *Transactions*, 1856-57, 4, that "their true mission is to draw public attention to great improvements in the art of production, and excite special interest rather than supply special wants."

¹⁰⁰ U. S. Commissioner of Patents, Report, 1858, Agriculture, 90-91.

¹⁰¹ Report from the Secretary of the Treasury . . . 1845, 755, 757-758.

Pennsylvania farmers in 1718 and 1830 seeking "to prohibit the importation into Philadelphia of the meats, vegetables and fruits of Jersey," see Raguet, The Principles of Free Trade, 113-114. See also William Hill, "Colonial Tariffs," Quarterly Journal of Economics, 7:80-82 (Oct. 1892).

100 Report from the Secretary of the Treasury . . . 1845, 295-296; De Bow's Review, 13:74-76 (July 1852).

104 Hunt's Merchants' Magazine, 27:266 (Aug. 1852).

108 Ibid., 31:508 (Oct. 1854).

106 Report from the Secretary of the Treasury . . . 1845, 755, 757; L. C. Gray, "The Market Surplus Problems of Colonial Tobacco," Agricultural History, 2:1-34 (Jan. 1928).

¹⁰⁷ U. S. Commissioner of Patents, Report, 1852, Part 2, Agriculture, 7-8. ket, ¹⁰⁸ and the competition of newer areas. ¹⁰⁹ Crop controls, for example, were about as American as any proposal for the relief of agriculture, having been espoused and attempted as early as the seventeenth century by the tobacco producers, ¹¹⁰ and again during the ante-bellum period by certain cotton-producing elements. ¹¹¹

An analysis of the causes for agrarian discontent as seen through the eyes of the farmer and nonfarmer elements presents an interesting study in contrasts. Someone suggested that one had to "pitch manure" like the farmers did in order to grasp the farm problem, but if the experiences of the farmers is any criterion "pitching manure" is more an evidence of physical labor than a guarantee that one has grasped the main aspects of the problem. It was neither the absence of farming experience nor of rural background, for that matter, that was at fault; it was the failure to see the farm problem in its proper relation to the rest of the economy. As one observer noted as late as 1914: "The farmer has . . . been ill-informed or, worse still, misinformed about the intricate difficult subjects of value, price, money, banking and credit; about the machinery and minutiae of distribution, channels of trade, and market methods; about the factors, agencies and influences involved in the retention as well as the production of farm wealth." The farmer found himself in "what Milton called 'confusion worse confounded'...."112

The causes of the farmers' difficulties, as seen through their organizations, often appear to have been based on "contradictory theories," varying from organization to organization, from decade to decade, and from commodity to commodity. There was no consistency in the explanations offered, unless it was in the sense of their being

¹⁰⁸ Report from the Secretary of the Treasury . . . 1845, 754-755.

109 "The European Grain Market," American Review, 5:643 (June 1847); "The Tariff of 1846," American Whig Review, 12:302-303 (Sept. 1850); U. S. Commissioner of Patents, Report, 1858, Agriculture, 216-217.

¹¹⁰ Theodore Saloutos, "Efforts at Crop Control in Seventeenth Century America," *Journal of Southern History*, 12:45-66 (Feb. 1946).

¹¹¹ James C. Bonner, "Genesis of Agricultural Reform in the Cotton Belt," *Journal of Southern History*, 9: 485-486 (Nov. 1943).

112 Wisconsin State Board of Public Affairs, Report Upon the Survey of the University of Wisconsin (Madison, 1914), 945.

consistently inconsistent. Among the reasons advanced were: "mono-metallism, deficient or defective circulating medium, protective tariffs, trusts, dressed-beef combinations, speculation in farm products, over-greedy middlemen, and exorbitant transportation rates."113 Some admitted the aquiring of more land than they could properly cultivate. References were made to the low prices, high interest rates, poor crops, poor management, the monopolistic practices of industry, extravagance, lack of organization, heavy mortgage indebtedness, and "too liberal use of their credit."114 Another observer, though correct in part, put it too simply when he said "there are altogether too many farms, too many cattle and swine, too many bushels of corn, wheat, rye, oats, barley, buckwheat, and potatoes, too many tons of hay, and too great a production of nearly all other farm products for the number of consumers."115 In 1894, the Master of the National Grange realistically noted, but upheld, the existing radical differences of opinion within the order on these matters: "Each one is encouraged to investigate, think and decide questions in accordance with his own best judgment."116 E. L. Godkin, no doubt, correctly pointed to one difficulty the farmer and his spokesmen were prone to overlook: "Of the world outside he knows and cares nothing. 'America is good enough for him.'"117

Once the farmers became organization conscious, an endless procession of organizations followed. From 1867 to 1902, there were organized the Patrons of Husbandry, the Agricultural Wheel, the Brothers of Freedom, the Farmers' Mutual Benefit Association, the Farmers' Alliance and its political oifshoot, the Populist Party. This endless procession of organizations, their regional character, and the changing emphasis in their demands were evidence that the farmers had

¹¹³ Davis, "Why the Farmer Is Not Prosperous," 232. See also Drew, "The Present Farmers' Movement," 290; and U. S. Industrial Commission, Report, 19:146.

¹¹⁴ Mappin, "Farm Mortgages and the Small Farmer," 449; National Grange, Journal of Proceedings, 1894, 14-24.

Davis, "Why the Farmer Is Not Prosperous," 241.
 National Grange, Journal of Proceedings, 1894,
 24.

117 "The Farmer as a Business Man," Nation, 63: 322 (Oct. 29, 1896).

¹¹⁵ U. S. Industrial Commission, Report, 10:ccclxiiccclxvii. failed to find a program capable of creating the unity and cohesion that was a condition precedent to an effective tackling of the farm problem.

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The Grange was foremost among the farmer organizations because it was the first to be organized and likewise the longest lived; it created a pattern that influenced contemporary organizations. The Grange, however, could claim little in its platform that was original. Its demands were a crystallization of the antimonopoly crusade that already was in progress,119 including the agitations of the local farmers' clubs of Illinois and the campaigns of the woolgrowers' associations and the cotton planters of the ante-bellum period. 120 These developments, along with the ineffectiveness of the local agricultural societies of the first half of the nineteenth century, helped emphasize the need for the aggressive program that was adopted by the Grange.121

Oliver Hudson Kelley, the man appointed to investigate the agricultural conditions of the South, was more impressed by the lack of social, cultural, and educational opportunities among the southern farmers than he was by any other single factor. Kelley, being a Mason and having

¹¹⁹ Solon J. Buck, The Granger Movement (Cambridge, Mass., 1914), 53.

¹²⁰ Ibid., 74-75; A. C. Cole, The Era of the Civil War, 1848-1870 (Springfield, Ill., 1919), 384-385; "History of Our Rural Organizations," U. S. Department of Agriculture, Report, 1875, 437-468; Rufus Nutting, "Farmers' Clubs," ibid., 1867, 236-247; "The Florida Cotton Plan Again," De Bow's Review, 13:291-292 (Sept. 1852).

121 There were some notes of discontent before the Civil War, but they were reflective of a small minority. For example, J. B. Turner, in the Illinois State Agricultural Society, *Transactions*, 1856–57, 420–421, said: "... while the government of the United States has expended millions of money for the comparatively meagre interests of commerce and manufactures, either directly or indirectly, it has not spent two hundred thousand dollars... all told, for the great interest of general agriculture since the origin of the government.... In my humble opinion the fifteen million of farmers of the Union have sucked the dry teat of indirect aid long enough to claim a quaff or two at the full breast of bona fide' direct aid."

The common objectives of the local agricultural societies were to raise better crops and livestock, to present papers on fruit culture, stress the need for industrial universities, and make awards for prize cattle, horses, sheep, swine, poultry, and fruits of various types. See footnote 99. sensed the influence that body had exerted in promoting sectional friendship, envisaged the creation of some similar rural organization to cater to farmers' needs and to bring to them some of the advantages enjoyed by city people. 122

But the Grange, like the contemporary labor organizations whose existence was threatened by depression, in search for some speedy formula for farm relief from low prices and heavy indebtedness, cast aside its social and cultural cloak and launched a double-barreled crusade for reform along the political and economic fronts. It was the panic of 1873 more than any other single factor that brought pressure on the organization to force it to adopt the political and economic program for which it is best known. 123

During the seventies and eighties the Grange focused attention on the need for cheaper and more uniform railroad rates, the curbing of middlemen's profits and malpractices, and the obtaining of cheaper credit facilities, especially for the southern farmers. These three demands did not preclude the existence of others like taxation, farm labor, and the tariff. Attention was called to the need for gathering statistics; isolated efforts were made to influence prices by encouraging farmers to limit the cotton crop, 126 and withhold wheat and hogs from market. 127 The Grange staged loud and vigorous protests over the con-

of the Patrons of Husbandry (Philadelphia, 1873), 11-20.

¹²³ The American Annual Cyclopaedia, 1873 (New York, 1874), 625-626, gives the number of granges established during 1868-1873 as follows: 1868, 11; 1869, 39; 1870, 38; 1871, 125; 1872, 1,105; 1873, 8,400.

¹²⁴ Clark, The Problem of Monopoly, 91; Commerical and Financial Chronicle, 16:464 (Apr. 5, 1873); C. W. Howard, "Conditions of Agriculture in the Cotton States," U. S. Department of Agriculture, Report, 1874, 219-220; Charles W. Pierson, "The Rise of the Granger Movement," Popular Science Monthly, 32: 199-208 (Dec. 1887).

125 Charles W. Pierson, "The Outcome of the Granger Movement," Popular Science Monthly, 32:372-373 (Jan. 1888); Buck, The Granger Movement, 105; National Grange, Journal of Proceedings, 1882, 83; ibid., 1883, 20-22; ibid., 1894, 26.

128 Buck, The Granger Movement, 294-296.

¹²⁷ Nation, 17:282 (Oct. 30, 1873); Jonathan Periam, The Groundswell; A History of the Origins, Aims, and Progress of the Farmers' Movement (Cincinnati and Chiago, 1874), 361; Herman Steen, Cooperative Marketing: The Golden Rule in Agriculture (Garden City, N. Y., 1923), 212. duct of agricultural education and demanded autonomy for those colleges connected with institutions receiving land-grant funds; investigations were made of agricultural education at home and abroad; college administrations and their curricula were probed in Ohio, California, and other States, and during the first flush of enthusiasm, Granger schools were organized in a number of States. 128

Government regulation of railroads was high on the agenda of the Grange. This campaign was "no war against railroads as such," John Bates Clark observed, but "against the corporations as they were conducted." The roads were entitled to "honest returns for genuine investments" but not on watered stock which forced farmers to pay higher rates. 129 "The railroad companies must submit to legislative control, the people can tolerate no divided sovereignty with corporations of their own creation." The Master of the National Grange exclaimed "that the same government which can take my land for the public good and fix the price thereof, can say to the railroad, 'The public good demands that you carry freight and persons at reasonable rates, which you henceforth must do, and we will decide what those rates shall be."130

The Grangers, beginning about the middle seventies, shifted some emphasis away from the cheaper transportation issue to the establishment of cooperative stores and marketing associations. The consumers' stores sought to supplant the purchasing-agent system that had been organized to lessen retail margins. ¹³¹ Short-lived cooperative grain elevators, livestock shipping associations, and cheese factories helped decrease marketing costs. Perhaps more permanent and prosperous were the farmers' mutual life insurance companies which enjoyed remarkable success from the start. Less successful were the Granger efforts to manufacture cooperatively farm machinery and imple-

¹²⁸ International Institute of Agriculture, Monthly Bulletin of Economic and Social Intelligence, 58(10):6 (Oct. 1915); Earle D. Ross, Democracy's College (Ames, Iowa, 1942), 79-85; and National Grange, Journal of Proceedings, 1892, 88-101; ibid., 1901, 12-17.

129 Clark, The Problem of Monopoly, 90-91.

130 Quoted in Thomas Clark Atkeson, Semi-Centennial History of the Patrons of Husbandry (New York, 1916), 62.

¹³¹ Periam, The Groundswell, 200-201; National Grange, Journal of Proceedings, 1879, 13-19.

ments, sewing machines, wagons, and other needs. 132

The Grange had some influence on contemporary farmer groups like the Farmers' Alliance and the Agricultural Wheel. 133 Farmer organizations, like individuals, presumably learned by imitating others. The Farmers' Alliance, of the newer organizations, carried on the campaign for remedial legislation and cooperative marketing and purchasing; whereas the Populist Party, chiefly a political offshoot of the Alliance, carried on more dramatically the campaign for the direct election of United States Senators, the direct primary. woman suffrage, the initiative and referendum. better credit facilities, railroad regulation, and an inflated currency. Monopoly, or what was generally believed to have been monopoly, had to cease; railroads were to be publicly owned; the principle of representative government had to be extended; and free silver was to meet the expanding monetary needs of the country. "One can not avoid a sense of pride in the courageous and political spirit of these derided farmers who, with all their mistakes, carried on the tradition of American self-government."134

During the nineties, the free-silver campaign occupied the agrarian spotlight. Free silver had mustered support among the Alliancemen, some Grangers, the Knights of Labor, the Greenbackers, and lesser reform groups. After the admission of half a dozen new western States into the Union in 1889 and 1890, the free-silverites received the support of the powerful silver mining interest of the West. The silver interests were guided largely by selfish motives in subsidizing this crusade; yet it was the farmers' case that was given the most publicity. Hundreds of thousands

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132 Arthur H. Hirsch, "Efforts of the Grange in the Middle West To Control the Price of Farm Machinery, 1870–1880," Mississippi Valley Historical Review, 15: 473–474 (March 1929); National Grange, Journal of Proceedings, 1897, 95; U. S. Federal Farm Board, Statistics of Farmers' Selling and Buying Associations, United States, 1863–1931 (Bulletin 9, Washington, 1932), 2; and Henry H. Bakken and Marvin A. Schaars, The Economics of Cooperative Marketing (New York, 1937), 49–56.

¹³³ Theodore Saloutos, "The Agricultural Wheel in Arkansas," Arkansas Historical Quarterly, 2:127-140 (June 1943).

134 Edward R. Lewis, A History of American Political Thought from the Civil War to the World War (New York, 1937), 304.

of farmers were taught to believe that free silver was the remedy they had been searching for all the while. There was an inadequate supply of money in circulation because the Government and the monied interests had discriminated against the greenbacks and silver; the discriminatory monetary policies of the Government was the chief explanation for low farm prices. The free and unlimited coinage of silver would remedy this; the expanding monetary needs of the Nation would be met; prices would rise; interest rates would be forced down; debts would be paid off; and a metallic security would be provided. 135 As long as farm prices were high, the farmer had little to worry about in the way of debts; whether justified or not, this at least was the reasoning of many. American experience with monetary problems and the relationship of the Government to prices, wages, and debts, especially since 1933, suggests that the arguments of the Populists were not as absurd as their critics made them out as being.

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The peak of the free-silver campaign was reached in 1896 from which point it retrogressed steadily. Free silver had too many obstacles to overcome. The Republican tradition was still strong in the agrarian West, and the Republican Party felt that protection for industry was more important than free silver. Then, too, shipping, banking, and commercial interests, and those in general who had international affiliations were "opposed to a silver currency at a time when virtually all European currencies were on a gold basis." Beginning in 1897 farm prices began to rise, thus relieving agricultural distress and simultaneously eliminating the very force which had been largely responsible for giving the agrarian elements a degree of cohesiveness. In 1900, legislation liberalized the laws pertaining to the establishment of national banks in rural areas with noteissuing powers. The free-silver argument might have lost its potency as a result of these developments, but this hardly meant that silver was to decline in importance. To the contrary, silver "was retained as a considerable element in the American currency system"; it merely lost its appeal as a social and political issue. 136

Another farm relief program, and one which

attracted slight attention, because of the greater appeal of free silver, was the Lubin plan. Named for its author, David Lubin, who later founded the International Institute of Agriculture in Rome, it attracted the support of the California State Grange and possibly a few other State granges as well as the endorsement of the chambers of commerce in San Francisco, Portland, Seattle, and other Pacific coast cities; but it never was endorsed by the National Grange.137 The Lubin plan, inspired by the bounty proposal of Alexander Hamilton, proposed "to restore protection unjustly deprived" the farmers by having the Federal Government pay bounties to exporters of "agricultural staples." This export bounty was to be "'equal to the cost of ocean transportation to Liverpool.'" Liverpool was selected, according to its protagonists, because it was on the Liverpool market that the prices of such staples as wheat and cotton were determined. By this process they were to provide some form of protection, at least, for the producers and exporters of "agricultural staples."138

Back in 1890 the National Grange had muttered "Protection for all or free trade for all,"139 but for the Lubinites during the mid-nineties it was protection or nothing. "'For the farmers say that they will not longer submit to this injustice. Free trade they do not want and will not have, except as a last resort." "140 The limited attention that the Lubin plan received practically vanished by the turn of the century, but the principle of paying bounties to exporters of agricultural products survived to hound the Coolidge and Hoover administrations during the 1920s.141 This principle, after experiencing certain facial and physiognomic alterations, emerged as the export debenture plan, fathered by Professor Charles L. Stewart of the University of Illinois, and was adopted by the National Grange.

¹³⁷ California State Grange, Journal of Proceedings, 1894, 93; National Grange, Journal of Proceedings, 1894, 168-176, 178-179, 192-193; Thomas Clark Atkeson Outlines of Grange History (Washington, 1928), 23-24, and his Semi-Centennial History, 180-182; "Protection and Farmers," Social Economist, 9(2):10-18 (Aug. 1895).

¹⁸⁵ The best study is John D. Hicks, The Populist Revolt (Minneapolis, 1931).

¹⁸⁸ Social Economist, 9(2):12 (Aug. 1895).

¹³⁹ Atkeson, Semi-Centennial History, 158.

¹⁴⁰ Social Economist, 9(2):12 (Aug. 1895).

¹⁴¹ This came up in the export debenture plan. See Joseph Stancliffe Davis, *The Farm Export Debenture Plan* (Stanford University, 1929), 1-41.

¹⁸¹ Harold L. Reed, "Free Silver," Encyclopaedia of the Social Sciences, 6:440 (New York, 1931); U. S. Industrial Commission, Report, 19:101, 148-149.

Another less emphasized relief program called for the establishment of farmers' trusts and holding companies, the thought being that "if trusts and combines are to be the order of the future, the farmer may as well enjoy whatever benefits can be derived from them; that many lines of the farmer's production might well come into combination to the farmer's advantage...."142 Withholding crops from market gained a minimum amount of attention during the seventies and eighties, but it increased during the nineties to the point of prompting the statistician of the United States Department of Agriculture to warn against the fallacy of such a program. 143 By the turn of the century, the general idea gained converts among the grain, cotton, and tobacco producers.

This, in substance, was the reaction of the farmers during the last three decades of the nineteenth century. Lower transportation rates, corporate regulation, cooperative marketing and purchasing associations, inflation of the currency, cheaper credit facilities, the payment of bounties, the granting of autonomy to agricultural colleges and their emphasis upon the more practical aspects of farm life, likewise the establishment of agricultural counter-trusts as a means for out-trusting the trusts, were included in their growing list of demands. Many critics received these and other demands with cynicism, indifference, ridicule, or outright opposition. Much of this might have been merited, but more important was the fact that the farmers had evolved no agricultural policy to cope with the farm problem. Part of the blame perhaps lay with the Federal Government which, rightfully or wrongfully refused to recognize the existence of a farm problem, and partly with the farmers themselves because of their inability to agree on the diagnosis and remedy to be administered. Each organization, baffled by the ramifications of the farm problem and the desire to preserve its individuality, laid emphasis on some particular formula with which it became identified.

¹⁴² J. R. Elliot, American Farms: Their Condition and Future (New York, 1890), 125.

¹⁴³ J. T. Horner, "The United States Governmental Activities in the Field of Agricultural Economics Prior to 1913," *Journal of Farm Economics*, 10:451-452 (Oct. 1928); and Steen, *Cooperative Marketing* (New York, 1923), 212.

During the seventies and eighties it was chiefly railroad regulation and cooperatives which occupied the spotlight; during the nineties, it was chiefly free silver; by the turn of the century, it was minimum prices combined with crop restrictions and withholding crops from market; during the second and third decades of the twentieth century the emphasis fell chiefly on cooperative marketing and purchasing associations, more liberal credit facilities, and the equalization-fee principle.

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Many farmers, with some degree of understanding, realized that forces outside the territorial confines of their respective farms affected their fortunes, but whether they fully understood the nature of these forces, their relationship to one another and, more important, to the rest of the economy is a different matter. The institutions of higher learning were hardly in a position to guide them, even though they began to realize, after, much pressure, that modern rural life required something more than the classics and other equally impractical subject matter. It appears unlikely that the farmers, as a group, realized that the more industrialism advanced, the more did the fortunes of an agricultural America become affected by forces beyond its control. The expansion of industry failed to free agriculture from the vicissitudes of the foreign market as many had predicted; in fact, agriculture became far more dependent upon the prosperity of industry than most farmers had suspected, which was in direct contrast to the manifestoes of agrarian spokesmen who had proclaimed, with unstinted ardor, that the prosperity of agriculture was fundamental to the prosperity of the Nation. The farmers were hardly as naive as many of their critics made them out as being; still the fact is that they, through their organizations, often stressed one curative to the point of minimizing and obscuring, if not completely overlooking, a multiplicity of factors that contributed materially to the plight of agriculture. The evidence of history is that the agricultural problem was the culmination of a variety of complex factors, for which there was no single simple cure and that the diagnoses of the agricultural ailments, as well as the prescriptions for their relief, are hardly to be considered as something separate and distinct from the rest of the economy.

HEGEL, THE TURNER HYPOTHESIS, AND THE SAFETY-VALVE THEORY

W. STULL HOLT

Department of History, University of Washington

In the extensive scholarly literature dealing with the possible sources or origins of Frederick Jackson Turner's frontier hypothesis and the smaller number of studies devoted to the safety-valve theory no one has called attention to a clear statement of the basic ideas in Hegel's *Philosophie der Geschichte*.¹

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Although evidence is lacking to prove that Turner knew about this work by Hegel it would be extraordinary if he had not read it. His formative years as a scholar was the very period when German historical scholarship enjoyed its greatest prestige in America. His teacher, friend, and colleague at Wisconsin, Professor William F. Allen, had studied in Germany. So also had Herbert B. Adams under whom Turner took a Ph.D. degree at Johns 'Hopkins University in 1890. It would have been a miracle if Turner had not been in contact with German scholarly literature, and the age of miracles was past. In an early article preceding his famous essay on the frontier he referred by name to some eighteen German scholars and listed in a bibliographical note seven works in German by Germans.2 Hegel

1 On the origin of Turner's ideas the notable items are: Carl Becker, "Frederick Jackson Turner," in Howard W. Odum, ed., American Masters of Social Science (New York, 1927), 273-318; Fulmer Mood, "The Development of Frederick Jackson Turner as a Historical Thinker," Colonial Society of Massachusetts, Transactions, 35:283-352 (1943), and his "Turner's Formative Period," in The Early Writings of Frederick Jackson Turner (Madison, Wis., 1938), 3-39; Wendell H. Stephenson, ed., "The Influence of Woodrow Wilson on Frederick Jackson Turner," Agricultural History, 19:249-253 (1945). Some of the expressions of the safety-valve theory prior to Turner are given by Fred A. Shannon, "A Post Mortem on the Labor-Safety-Valve Theory," ibid., 19:31. My attention was called to this passage in Hegel by my friend and colleague, Dr. Ludwig Edelstein.

1 "The Significance of History," in The Early Writings of Frederick Jackson Turner, 43-68. Rudolf Freund has expressed his belief that the philosophical ideas in this essay were provoked by the reading of these German writers and has asserted that "Schelling, Herder,

is not named nor is his *Philosophie der Geschichte* listed, but it would have been extraordinary if Turner had not read Hegel.

This is not to say that Turner had his flash of insight after reading Hegel's comment on the part played by the frontier in America. It merely means that a widely known book by a most distinguished German scholar may have planted the seed in Turner's fertile mind.

Whatever the connection with Turner there can be no doubt that Hegel's description of the empty agricultural frontier as a safety valve in America is one of the earliest statements of that theory and deserves to be noted as such. The book of lectures entitled Philosophie der Geschichte was first published in 1837, six years after Hegel's death. That edition was prepared by Professor Eduard Gans chiefly from notes taken by persons who heard the lectures as given in 1830-1831. The second edition was edited by Hegel's son, Karl, who had the benefit of his father's manuscripts and who could therefore date some of the material as 1822-1823 when the lectures were first given. The passage relating to the American frontier reads as follows .

Aber Amerika geht dieser Spannung noch nicht entgegen, denn es hat unaufhörlich den Ausweg der Colonisation in hohem Grade offen, und es strömen beständig eine Menge Menschen in die Ebenen des Missisippi. Durch dieses Mittel ist die Hauptquelle der Unzufriedenheit geschwunden, und das Fortbestehen des jetzigen bürgerlichen Zustandes wird verbürgt. Eine Vergleichung der nordamerikanischen Freistaaten mit europäischen Ländern ist daher unmöglich, denn in Europa ist ein solcher natürlicher Abfluss der Bevölkerung, trotz aller Auswanderungen, nicht vorhanden: hätten die Wälder Germaniens noch existirt, so wäre freilich die französische Revolution nicht ins Leben getreten. Mit Europa könnte Nordamerika erst verglichen werden, wenn der unermeszliche Raum, den dieser Staat darbietet, ausgefüllt und die bürgerliche Gessellschaft

and Hegel raise their speculative heads." See Freund's article, "Turner's Theory of Social Evolution," in Agricultural History, 19:82. The two former were cited by Turner. I, at least, found it difficult to identify the speculative head of Hegel.

in sich zurückgedrängt wäre. Nordamerika ist noch auf dem Standpunkt, das Land anzubauen. Erst wenn wie in Europa die blosse Vermehrung der Ackerbauer gehemmt ist, werden sich die Bewohner, statt hinaus nach Aekkern zu drängen, zu städtischen Gewerben und Verkehr in sich hineindrängen, ein compactes System bürgerlicher Gesellschaft bilden und zu dem Bedürfniss eines organischen Staates kommen.²

An adequate English translation of this passage reads:

But America is hitherto exempt from this [economic] pressure, for it has the outlet of colonization constantly and widely open, and multitudes are continually streaming into the plains of the Mississippi. By this means the chief source of discontent is removed, and the continuation of the existing civil condition is guaranteed. A comparison of the United States of North America with European lands is therefore impossible; for in

³ Georg Wilhelm Friedrich Hegel, Werke, 9:106-107 (Berlin, 1848). This volume contains the prefaces of both the 1837 and the 1840 editions which explain the facts about the preparation of the manuscript for publication.

Europe, such a natural outlet for population, notwithstanding all the emigrations that take place, does not exist. Had the woods of Germany been in existence, the French Revolution would not have occurred. North America will be comparable with Europe only after the immeasurable space which that country presents to its inhabitants shall have been occupied, and the members of the political body shall have begun to be pressed back on each other. North America is still in the condition of having land to begin to cultivate. Only when, as in Europe, the direct increase of agriculturists is checked, will the inhabitants, instead of pressing outwards to occupy the fields, press inwards upon each other,-pursuing town occupations, and trading with their fellow citizens; and so form a compact system of civil society, and require an organized state.4

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⁴ Lectures on the Philosophy of History, translated from the third German edition by J. Sibree (New York, 1870), 86. The first edition of this translation was published in London in 1852. Other London editions were issued in 1861, 1881, and 1902. Probably the edition most readily available in the United States is The Philosophy of History . . . with prefaces by Charles Hegel and the translator, J. Sibree (rev. ed., New York, Colonial Press, 1899.)

JEAN PAUL VIGNES, CALIFORNIA'S FIRST PROFESSIONAL WINEGROWER

IRVING McKEE

Department of English, University of California, Berkeley

About 90 percent of the wine produced in the United States comes from California, where the industry was founded soon after the establishment of the first mission at San Diego in 1769. But the padres were mainly concerned with self-preservation and education of the Indians; the winegrowing which they practiced, therefore, was of necessity a distinctly secondary occupation.¹

The first professional winegrower came to California in 1831. His name, appropriately enough, was Vignes—Jean Louis Vignes. Born near Bordeaux, France, in 1779, Vignes had been trained as a cooper and distiller in his native land. He settled at the pueblo of Los Angeles and by 1833 was established there as a vineyardist. Already the little settlement had won some fame as a wine

¹ H. B. Leggett, Early History of Wine Production in California (mimeographed booklet, San Francisco, Wine Institute, Apr. 2, 1941), 14-36.

center; it boasted at least six winegrowers with an estimated 100 acres and 100,000 vines. And nearby, in other parts of what is now Los Angeles County, stood two missions which led all California's twenty-one in the production of wines: San Gabriel, credited with 160,000 vines and an annual yield of 35,000 gallons, and San Fernando, 32,000 vines and 4,000 gallons (including brandy).

As another Frenchman and connoisseur pointed out, however, the reputation of Los Angeles suffered greatly from ignorance in its wineries. "The vine succeeds very well;" wrote Auguste Bernard Duhaut-Cilly after his visit in 1827,

² Hubert Howe Bancroft, History of California (San Francisco, 1886), 5:762, and California Pastoral (San Francisco, 1888), 192, 371-372; Alfred Robinson, Life in California . . . (San Francisco, 1891), 45; [John Albert Wilson,] History of Los Angeles County, California (Oakland, 1880), 64; and An Illustrated History of Los Angeles County, California (Chicago, 1889), 115.

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"but wine and brandy extracted from it are very inferior to the exquisite taste of the grape used for it, and I think this inferiority is to be attributed to the making rather than to the growth." The time indeed called for an expert.

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Vignes answered the call. He bought some land and laid out a vineyard of 104 acres in the heart of what is now downtown Los Angeles, just west of the river with the same name. Until then California had known only the Mission grape; Vignes was the first to import new European varieties and the first to foresee in appropriate terms the destiny of California winegrowing (as well as orange growing). William Heath Davis, an early dealer in wines and a close friend of Vignes, thus testified to the Frenchman's pioneering in 1833:

At that early day he imported cuttings of different varieties of grapes, in small quantities, which were put up with great care and sent from France to Boston; thence they came out in the vessels trading on this coast, to be experimented with in wine producing. He took great pride in the business. I regard him as the pioneer not only in wine making, but in the orange cultivation, he being the first man to raise oranges in Los Angeles and the first to establish a vineyard of any pretension. In 1833 I called to see him at his house and found him well established. My old friend was overjoyed to see me and received me most hospitably; I remained two or three days with him. I was a boy at that time, and he said to me most warmly, "William, I only regret that I am not of your age. With my knowledge of vine and orange cultivation and of the soil and climate of California, I foresee that these two are to have a great future; this is just the place to grow them to perfection." He was then about fifty years old [actually fifty-four], full of zeal and enterprise. He was one of the most valuable men who ever came to California, and the father of the wine industry here. He had an intelligent appreciation of the extent and importance of this interest in the future.4

The date of Vignes' first vintage is not now ascertainable, but the upward limit can probably be set at 1837, for in 1857 he advertised some of his wine as 20 years old. He was thus the first

³ "[Auguste Bernard] Duhaut-Cilly's Account of California in the Years 1827-28," translated from the French by Charles Franklin Carter, in the California Historical Society Quarterly, 8:246 (September 1929).

⁴William Heath Davis, Seventy-Five Years in California (San Francisco, John Howell, 1929), 120-121. All the quotations from this source are by permission. Cf. Harris Newmark, Sixty Years in Southern California, 1853-1913 (New York, 1926), 197.

Californian not only to specialize in winegrowing but to age his vintages in quantity. Visiting Vignes again in 1842, Davis was impressed as of yore with his host's enthusiasm, but above all with the quality of the aged vintages; oranges were no longer in the picture.

In 1842, nine years afterward, I again called to see him. He asked me if I remembered what he had said to me when I was last there, about the California wine, its importance and value, and remarked that he would now prove to me that his predictions were correct, and would show me what he could do for California. He then took me and a friend who was with me into his cellar and showed us the different vintages stored there, and brought out several bottles of his old wine, which were tested and commended. He said he had written home to France representing the advantages of California for wine making, telling them that he believed the day would come when California would rival "la belle France" in wine producing of all varieties, not only in quantity, but in quality, not even excepting champagne; and that he had also induced several of his relations and a number of his more intelligent countrymen to come to California to settle near Los Angeles, and engage in the business. He also manufactured aguardiente [brandy] in considerable quantities, as did other wine producers. This liquor was considered by the old settlers as a superior article when three or four years old. Beyond that, it still improved in quality. being of a finer flavor, entirely pure, and was regarded as a wholesome drink. It was made from the old Mission grapes. When first produced it was clear and colorless, like gin or alcohol, but gradually assumed a slight tint with age, and when six, eight or ten years old, became of fine amber color, and was then a rich, oily liquor, very palatable.5

How many friends Vignes induced to leave France and start vineyards in California cannot now be determined, but at least eight of his relatives emigrated (he himself was a lifelong bachelor).⁶ Probably the first of these was a nephew, Pierre Sainsevain, also from the region of Bor

⁵ Davis, Seventy-Five Years in California, 121. Cf. Newmark, Sixty Years in Southern California, 200.

⁶ Pierre Sainsevain, Jean Louis Sainsevain, Jean M. Vignes, and Vital Fernando (all nephews); Pierre E. Vignes, Michel Sainsevain, and Charles Sainsevain. "Henry Sainsevin" was listed as a wine dealer in San Francisco, 1880–1881. Bancroft, History of California, 5:708, 762–763; Newmark, Sixty Years in Southern California, 198; An Illustrated History of Los Angeles County, 815; San Francisco City Directories, 1862–1881; Daniel Lévy, Les Français en Californie (San Francisco 1884), 64–65.

deaux. When he joined his uncle at Los Angeles in July 1839, the 21-year-old Sainsevain found "in the neighborhood of 40,000 vines, a very good cellar, and good casks." By then the Aliso Vineyard, named after a sycamore which marked its entrance and winery, was well-known throughout southern California, and soon its fame was to spread farther. For in 1840 Sainsevain loaded the ship Mooson (sic) with Vignes' wines and brandies and sailed for the ports of Santa Barbara, Monterey, and San Francisco. The cargo attracted the "good price" of \$2 per gallon for white wines and \$4 for brandies. Even more significantly, it was the first-known shipment, in quantity and for any considerable distance, of California wines.7

Davis found Vignes' coastwise trade (in that rail-less era) thriving in 1842. Moreover, since ships customarily carried choice wines from Boston to California and back merely to improve them by sea travel, Vignes was subjecting his own vintages to the same treatment. For we learn that he presented a cask of Aliso wine to Mrs. John Paty the same year, on the occasion of her departure for Honolulu aboard a ship commanded by her husband, Captain John Paty; Vignes assured the lady that the wine would be improved when the vessel reached its destination. Unfortunately, however, as Davis recorded, Captain Paty and his officers deemed the special cargo so agreeable that it disappeared entirely en route.8

About the same time Davis and Paty presented Commodore Thomas Ap Catesby Jones, soon to take part in the American conquest of California, with some Vignes wine. It was "superior to anything else that could be procured," wrote Davis. Even more notably, in January 1843, Vignes himself entertained Commodore Jones and his officers at Aliso. By then the most extensive winegrower in California, producing as much as 40,000 gallons annually, Vignes delighted his guests with generous samples, some 8 or 10 years old, and all of fine quality. Impressively large quantities of wines, stored in pipes, occupied several cellars. "Vignes presented the commodore and the officers," noted Davis, "with several barrels of this choice wine, which was gratefully

accepted. He remarked that he desired them to preserve some of it to take to Washington to give to the President of the United States, that he might know what excellent wine was produced in California."9

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The available records do not reveal whether President Tyler received any of this wine, but the gift and the intention behind it surely earn for Vignes a high mark in the practice of sound public relations. His success in this, as well as in the more tangible aspects of winegrowing, gave Los Angeles a stimulus the results of which were almost immediately apparent. During the decade, 1840-1850, at least a dozen new growers won prominence there. Visiting in 1847, Edwin Bryant was impressed by the abundant yield of numerous vineyards, some containing as many as 20,000 vines, and by the quality of the vintages. The county had yielded an estimated 24,000 gallons in 1841; this rose to an official 57,355 in 1850. The latter figure topped that of Guernsey County, Ohiothe nearest competitor in the Nation-by more than 20,000 gallons. California thus proved, in the first year of its statehood, that it contained the richest wine land in the United States.10

The fulfillment of Vignes' dream was on its way, and he had played a more substantial part in it than any other of his time. "Don Luis del Aliso," as he was called, well deserved his title of father of California winegrowing. His vineyard, entered by a wide gate opening upon a grape arbor a quarter of a mile long, drew sightseers from far and wide. In addition he was a civic leader in the rapidly growing town, generous, popular, and respected. Davis's summary of Don Luis in 1852, at the age of seventy-three, as man and winegrower, is eloquent:

Don Luis was truly one of the most enlightened pioneers of the coast.... Vignes was then quite old, but his intellect was unimpaired. The Don was full of history of wine matters, and kept up a constant stream of conversation, proud of his success, and overflowing with brilliant anticipations of the future of this interest in which he was so wrapped up, as bearing upon the prose perity of the state and its commercial importance....

⁷ Pierre Sainsevain's letter of June 22, 1886, in Arpad Haraszthy, The Haraszthy Family (1886), 46-48, a manuscript in the Bancroft Library.

⁸ Davis, Seventy-Five Years in California, 120.

Ibid., 120, 298. Cf. John Steven McGroarty, ed.,
 History of Los Angeles County (Chicago, 1923), 1:30-31.
 Newmark, Sixty Years in Southern California, 199-202; Edwin Bryant, What I Saw in California (London, 1849), 352-353; Benjamin Hayes Scrap Books (129)

don, 1849), 352-353; Benjamin Hayes Scrap Books (129 vols., mss., Bancroft Library), vol. 2, no. 281; U. S. Census Office, Seventh Census, 1850, 985.

His choice old wine could be drunk with impunity. It had an agreeable, exhilarating and strengthening effect, but no unpleasant after-consequences. He was known by everybody in the vicinity of Los Angeles, and appreciated. He was generous to the poor; in their distress he helped them in bread, money and wine. . . .

I am sure that all of the residents of California who were living here at the time of Don Luis will endorse what I have said in regard to him and his influence upon

the prosperity of the country.11

Vignes' example, and the gold rush, resulted in an unprecedented boom in winegrowing during the 1850s. Many of the newcomers found here a surer way to riches than the trail to the mines. In 1851 a newspaper reporter counted 105 vinevards in Los Angeles County, 20 of them within the present city limits. Grapes sold at 20 cents per pound at San Francisco and 80 cents at Stockton. In such circumstances, and doubtless feeling the weight of his years, Don Luis decided it was time to retire. In 1855 he sold Aliso to Jean Louis Sainsevain, Pierre's older brother (by two years), who had arrived that year from France. The sale was said to have involved \$42,000-by far the largest amount paid for a piece of Los Angeles real estate up to that time.12

The Sainsevain brothers carried on with vigor from the point where their uncle left off. Almost at once they concentrated on making California champagne, which, as we have seen, Don Luis had envisaged in 1842. Pierre went to France in 1856 to study the processes, and the following year returned with a trained technician from the Champagne district. During 1857 Pierre produced 50,000 bottles of California champagne, and the next year 150,000. "The champagne of the Messrs. Sainsevain Brothers," read an optimistic newspaper item of November 1857, "has gained a complete triumph, having arrived at the first rank with the imported wines of Europe, and superior to the best champagne of Chalons or Reims." Jean himself stated that "he was now regularly filling a standing order, three hundred dozen per month of this wine, at twelve dollars per dozen, receiving his cash in San Francisco, the wine to go to New York." As it turned out, however, the experiment failed, and the Sainsevains

were reported to have lost \$50,000. California had to wait another generation for fine native champagne.¹³

Undaunted the brothers established wine cellars in San Francisco in 1857. According to a newspaper story, they had sold 37,000 gallons of wine the year before; the year after (1858) they led the State with a production of 125,000 gallons, much of it labeled "Aliso." Their advertisement in the San Francisco directory of 1858—the only such proclamation of California wines in the volume—read:

SAINSEVAIN BROS.
FIRST PREMIUM
NATIVE CALIFORNIA WINES FROM
THEIR CELEBRATED VINEYARD OF EL ALISO
AT LOS ANGELES.
SPARKLING CALIFORNIA CHAMPAGNE,
CALIFORNIA WHITE WINE,
CALIFORNIA ANGELICA WINE,
CALIFORNIA PORT WINE,
CALIFORNIA RED WINE,
CALIFORNIA BRANDY.

NO. 195 MONTGOMERY STREET, HENTSCH'S BUILDING.

The Sainsevains sold 230,400 gallons of wine in 1860, much of it shipped to New York, and the next year opened the first known California cellar in that city. ¹⁴

But the two brothers' partnership was dissolved shortly afterward, and the rest of their tale is soon told. Jean owned 80,000 vines at Los Angeles in 1865 and worked them until he sold out two years later; he owned another vine-yard in San Bernardino County in 1871 and died in 1889. Pierre launched a wine business in New York in 1864 but was said to have suffered reverses. A little later he possessed 116 acres of vines at San Jose and from 1869 to 1874 conducted a native wine business at San Francisco in association with at least three other Sainsevains. After an interlude of eight years in Central America,

¹⁸ Unattributed clippings dated November 1857, in the Benjamin Hayes Scrap Books, vol. 2, nos. 261-262; California State Agricultural Society, *Transactions*, 1858, 286; J. S. Hittell, "The Wines of California," *Pacific Monthly*, 10:196 (September 1863); Sainsevain's letter of June 22, 1886.

¹⁴ Sainsevain's letter of June 22, 1886; unattributed clippings dated 1858, in the Benjamin Hayes Scrap Books, vol. 2, nos. 253-254; San Francisco Herald, Nov. 19, 1860; Thomas George Shaw, Wine, the Vine, and the Cellar (London, 1864), 469-471.

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¹¹ Davis, Seventy-Five Years in California, 122. Cf. Newmark, Sixty Years in Southern California, 198.

¹² Los Angeles Star, July 26, 1851; Sacramento Transcript, Mar. 14, 1851; An Illustrated History of Los Angeles County, 351-353.

he again engaged in winegrowing at San Jose, where he bottled small quantities of champagne. About 1889 Pierre returned to France, where he is reported to have "spent the rest of his days." The Sainsevains are commemorated by the street named after them in present-day Los Angeles. Whatever the ultimate success of the two

15 McGroarty, History of Los Angeles County, 1:30-31; Hittell, "The Wines of California," 205; Titus Fey Cronise, The Natural Wealth of California (San Fran-

cisco, 1868), 392; Bancroft Scraps (113 vols., mss., Bancroft Library), 2:388, 458; An Illustrated History of Los Angeles County, 814-815; Eugene T. Sawyer, History of Santa Clara County, California (Los Angeles, 1922), 775-776; San Francisco City Directories, 1869-1874; Sainsevain's letter of June 22, 1886.

brothers, southern California winegrowing had come of age, with the Aliso Vineyard leading the way. But the prime mover had long since reached the end of his own long trail. Don Luis Vignes died in Los Angeles on January 17, 1862, aged eighty-three years. The respect in which he was held, as in the case of his nephews, is testified today by Vignes Street in the heart of the California metropolis. Nothing could be more apt here, however, than his friend Davis's wish, concerning California's first professional winegrower: "It is to be hoped that historians will do justice to his character, his labors and foresight." 17

18 San Francisco Alta, Feb. 2, 1862.

17 Davis, Seventy-Five Years in California, 122.

WATER CONFLICTS AND CONTROLS IN COLORADO

ROBERT G. DUNBAR

Department of History, Montana State College

The agriculture of the arid West has its own peculiar problems.1 Since the annual rainfall averages less than 20 inches, the supply of water is insufficient for agriculture as it is practiced in the eastern part of the United States. Consequently, farmers of the Great Plains and the Rocky Mountain region farm very differently from those in the humid East. Whereas those of the humid East are often concerned about a surplus of water, those of the arid West are generally concerned about a deficiency of it. They must either add it to the land by irrigation or conserve it in the soil by dryfarming techniques. Of necessity the farmers of the arid West have developed not only different agricultural techniques but also different laws and institutions for the control of water which have no counterpart in eastern agriculture.

These new irrigation techniques and institutions were developed with great difficulty. Most of the men who developed them came from the humid areas where they had no acquaintance with the methods necessary for farming in a dry country. They might have learned something from the Spanish-speaking people of the Southwest, but

¹ This paper was presented at the joint session of the Agricultural History Society, the Economic History Association, and the Mississippi Valley Historical Association at Columbus, Ohio, on April 26, 1947.

either they did not settle among them or they scorned the different culture. Those who settled in California and Colorado received some help from the miners, but in general these early Anglo-American irrigators dug their first ditches without pattern or previous experience. Their early ditches were dug in the bottom lands near the streams. They were short and small. Oftentimes they worked badly and sometimes crops failed for want of water, but the irrigators learned from each experience. Within a decade or so, they were building larger and larger canals out onto the benchlands.

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More difficult than the construction of the ditches, dams, and laterals—the physical plant of an irrigation society—was the invention of institutions for social control.² The pioneer irrigators were individualists. They were antagonistic to laws and institutions which would control their lives and property. Yet human experience dating back to predynastic Egypt had demonstrated that irrigation required some subordination of the in-

² David Boyd, Irrigation Near Greeley, Colorado (U. S. Geological Survey, Water-Supply and Irrigation Paper 9, Washington, 1897), 9; Olaf F. Larson, Man-Land Adjustment Processes in Weld County, Colorado (unpublished Ph.D. thesis, University of Wisconsin, 1941), 184-193. dividual to group control. The result was a condict between the needs of an irrigation society and frontier individualism. Presumably, this conflict occurred in each of the Rocky Mountain States, but in Colorado it led to the formulation of a system of public control of water which had a wide influence. It is to this conflict that we now direct our attention.

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Utah and California were already thriving communities based on irrigation when the gold rush of 1859 peopled the mountain gulches of central Colorado with miners and the broad valleys of the South Platte and its tributaries with farmers intent upon supplying the mining camps with wild hay and agricultural produce at high prices. These fifty-niner farmers inaugurated what has been called "the third germinal point" in the development of western irrigation institutions.³

According to the records, David K. Wall was the first of their number to irrigate. With experience gained from raising potatoes by irrigation in California, Wall diverted water from Clear Creek onto the site of present-day Golden, Colorado, and in the summer of 1859 irrigated two thousand dollars worth of produce.4 That fall, the fall of the organization of Jefferson Territory, other pioneer irrigators started to dig ditches to take water from Boulder Creek and Bear Creek, north and south of Clear Creek. The next year diversions were made from Saint Vrain Creek and the Cache la Poudre River, and in 1861, from the Big Thompson River, with the result that within three years after the initial gold rush, one or more irrigation ditches had been taken out of nearly all the principal streams of the upper South Platte Valley.5

As long as the ditches were confined to the river bottoms, the streams supplied an abundance of water for all users, and the question of who could use the water did not arise. It was after the streams became overappropriated by the construction of larger ditches extending to the benchlands, that the question of property rights in water arose. Then the stream flow became insufficient to supply all of the ditches, and, especially in time of drought,

water users were faced with a scarcity of water. Scarcity precipitated conflicts, and these conflicts highlighted the need for a definition of water rights and for the creation of institutions for the public control of the streams. One of the most consequential of these conflicts occurred in the Cache la Poudre Valley in the summer of 1874.

Four years previously Nathan C. Meeker and his Union Colony associates had founded the community of Greeley on the banks of the Cache la Poudre River near its junction with the South Platte. This event was one of the most important in the early agricultural development of the State. The colony members came principally from New England and the North Central States. They were men and women of more than average education and learning. Consequently, they brought to the solution of agricultural problems more than average insight.

The colony was a cooperative undertaking. Each member subscribed \$155, and the trustees of the colony furnished the land and constructed the irrigation ditches. Two ditches were taken out of the Cache la Poudre-Colony Canal No. 3 and Colony Canal No. 2. Canal No. 3 was taken out of the south bank of the river to supply the town lots, and Canal No. 2, a much larger ditch, was a diversion from the north bank of the river to irrigate the farms on the benchland north of Greeley. In fact, Colony Canal No. 2 was by far the largest diversion yet made from the Poudre. It was begun in the fall of 1870 for use during the 1871 growing season, but its construction was so faulty that it failed to provide sufficient water. As a result, the farmers who depended on it experienced a crop failure. Although the colony nearly foundered in the resulting crisis, the ditch was repaired and enlarged, and was operated successfully in 1872.6

Apparently encouraged by the success of this crop season, several members of the colony, headed by its first vice president, General R. A. Cameron, organized a business venture known as the Agri-

³ Ralph H. Hess, "The Beginnings of Irrigation in the United States," Journal of Political Economy, 22:818 (October 1912).

⁴ Alvin T. Steinel, History of Agriculture in Colorado (Fort Collins, 1926), 180-182; Rocky Mountain News (Denver, Colo.), Feb. 22, 1860.

⁵ Colorado State Engineer, Biennial Report, 1883-1884, appendix, 4-59.

⁶ James F. Willard, ed., The Union Colony at Greeley, Colorado, 1869-1871 (Boulder, 1918), ix-xxxi, 1-30, 55-56, 76-77, 103; David Boyd, A History: Greeley and the Union Colony of Colorado (Greeley, 1890), 11-63; Richard J. Hinton, A Report on Irrigation and the Cultivation of the Soil Thereby, with Physical Data, Conditions, and Progress within the United States for 1891 (52 Congress, 1 session, Senate Executive Document 41, pt. 1, serial 2899, Washington, 1892), 138-141.

cultural Colony, which they located 25 miles up the Cache la Poudre River at Fort Collins, near the place where the river emerges from the mountains. Here in 1872 and 1873, two more canals, Larimer County Canal No. 2 and the Lake Canal, were taken out of the river. These two canals had a capacity roughly equal to that of the two Union Colony canals.⁷ Thus the stage was set for the historic conflict of 1874.

The early summer of 1874 was unusually dry. There was no rain, and the days were very warm. Forest fires raged in the mountains, and grasshoppers appeared on the plains. The Poudre was extremely low, the lowest, according to the Fort Collins Standard, since 1863. At Greeley there was not enough water in the river to supply both ditches of the colony, and early in July the trustees of the colony ordered the headgates of Canal No. 2 to be closed two days a week so that some water could be supplied to Canal No. 3. 10

This situation alarmed the Union Colony. Its leaders knew that water was scarce, but they were also aware of the two big ditches 25 miles up the river which the Fort Collins people had dug the year before. It made no difference that the Greeley ditches antedated those at Fort Collins by two years. The water came to Fort Collins first, so that the upstream farmers were able to deprive the downstream users of all water if they so desired. Who had the better right to the use of the waters of a stream, the early comers or the late comers? This was a question that had not arisen in the frontier settlement of the humid East. "Who shall have the preference when water becomes scarce?" asked the editor of the Fort Collins Standard.11 What will be the law of waters in the arid West? The Greeley leaders felt that upon a definite answer to these questions depended the future of their community.

Nathan C. Meeker, as founder of the colony and

⁷ Adjudication Proceedings in Water District No. 3, Record of Testimony Taken by H. N. Haynes, Referee, Book 1:201, 208, 345–348, in the Larimer County Courthouse, Fort Collins, Colorado; Ansel Watrous, History of Larimer County, Colorado (Fort Collins, 1911). 230–233.

⁸ Greeley Tribune, July 8, 15, 22, 1874; Colorado Sun (Greeley), July 11, 1874; Fort Collins Standard, July 15, 1874.

9 Fort Collins Standard, July 15, 1874.

¹⁰ Greeley Tribune, July 8, 15, 1874; Colorado Sun, July 11, 1874.

11 Fort Collins Standard, July 15, 1874.

editor of the Greeley Tribune, formulated their demands. First, he demanded the recognition of the principle that the early comers have a better right to the waters of a stream than the late comers, that priority of appropriation gives a prior right to the use of the water. This legal doctrine had already been partially formulated by the miners of California and Colorado and had been mentioned in a territorial law of 1864. Meeker felt that the property and investment of the Union Colony would not be secure until it was recognized that the colony's canals by virtue of prior appropriation had a right to the water of the Cache la Poudre River prior to that of the canals constructed later by the Fort Collins irrigators. Second, Meeker proposed the control of the river by a superintendent and the equitable division of the water by that official. He wrote in the Tribune for July 8, 1874:

It looks to us as though it would be much better to consolidate the interests of every ditch owner, and to make the river an irrigation canal, subject to such superintendence as is established on our Number Two; for by this means everyone would have his rights, the supply of water would be constant, and all would know what to depend upon.

This proposal foreshadowed the historic legislation of 1879. Third, Meeker proposed that the flood waters of the Poudre be caught and conserved in a mountain reservoir. "It is expected," he wrote, "that a large amount of water can be saved during the spring and summer floods by having a strong dam made in the mountains, and that in this way all can have what they need." Here he foreshadowed the later reservoir development of the Cache la Poudre Valley. Fourth, he proposed that "every project for taking out more water shall be knocked in the head," that further diversion of the Poudre be prohibited. 12

With such a program in mind, Meeker and two other men went to Fort Collins on July 9 to investigate the situation. They returned and reported that the two Fort Collins canals were full of water and that much more water than could be used was running in Larimer County Canal No. 2. The next step was to apply for a perpetual injunction against the officers of each canal. When this decision became known in Fort Collins, General R. A. Cameron and the owners of the Lake Canal went to Greeley and suggested a conference of the ditch

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¹² Greeley Tribune, July 8, 15, 1874.

owners of the two communities in order to settle the controversy out of court. It was agreed that the conference would be held at a schoohouse, midway between the two towns on July 15, 1874.

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The convention met on the date designated. About forty men, representing about twenty ditches, attended. The Greeley delegation, in accordance with Meeker's program, demanded recognition of their prior rights and the appointment of a river commission to divide the water equitably. On the other hand, the Fort Collins delegation refused to recognize the prior rights of the Greeley canals but favored the appointment of one person to divide the water according to need during that summer. The debate was lively. Meeker wanted a continuation of the injunction proceedings in order to produce a test case and to secure a definition of property rights in water from the courts. Finally, in return for a suspension of the injunction, the Fort Collins farmers agreed to permit more water to flow down the river, and the conference broke up without any of the issues being settled.13

On the basis of a figure of speech in David Boyd's A History: Greeley and the Union Colony of Colorado, it has sometimes been supposed that this meeting was stormy and that it broke up with threats of violence. The contemporary accounts make it clear that this supposition is erroneous. The Colorado Sun, which was published at Greeley, reported: "There were no indications of a quarrel during the conference. Indeed, with the exception, in one instance, of heated remarks, the best of feeling prevailed throughout the convention." On the other hand, it is also clear that Boyd did lose his temper and "that one of the Greeley gentlemen was forced to his feet to utter a disclaimer for the Hibernian warrior." 16

Accounts differ as to the amount of water which the Fort Collins owners let down the river, but it is evident that Meeker believed the agreement was not honored. Happily, the drought was broken on July 20 when "sufficient rain fell to soak the ground to the depth of five inches." Other rains followed, and the controversy was not renewed.

But the Greeley people did not forget. Wrote Boyd, "from this day forth we had set our hearts on having some regulations looking towards a distribution of the waters of the state in harmony with the principle of prior appropriation." 18

Less than two years later, the constitutional convention decided the question of prior rights in favor of the Greeley position. It met on December 20, 1875 and created among its committees a committee on irrigation, agriculture and manufactures, consisting of nine members. To it were appointed two representatives from Weld County, of which Greeley is the county seat, but none were appointed from the Fort Collins area. S. J. Plumb of Weld County was made chairman. On February 11, 1876, this committee presented a report which contained a section on prior rights. This section was somewhat revised by the convention and adopted as part of the Constitution of Colorado in these words:

The right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied. Priority of appropriation shall give the better right as between those using the water for the same purpose; but when the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose, and those using the water for agricultural purposes shall have preference over those using the same for manufacturing purposes.¹⁹

Nathan C. Meeker expressed his approval in the columns of the Greeley *Tribune*.²⁰ However, still undetermined was a method of ascertaining priorities.

The constitutional convention also laid the basis for the public control of the waters of the State by declaring that "the water of every natural stream . . . within the State of Colorado is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the State," but it did not create nor suggest any machinery of control aside from a method of fixing "maximum rates to be charged for the use of water." Nor did the first State legislature.

¹³ Ibid., July 22, 1874; Colorado Sun, July 18, 1874; Fort Collins Standard, July 22, 1874; Boyd, History, 120.

¹⁴ Boyd, History, 120.

¹⁵ Colorado Sun, July 25, 1874.

¹⁶ Fort Collins Standard, July 22, 1874.

¹⁷ Colorado Sun, July 25, 1874; see also Rocky Mountain News, July 22, 1874.

¹⁸ Boyd, History, 120.

¹⁰ Proceedings of the Constitutional Convention Held in Denver, December 20, 1875, To Frame a Constitution for the State of Colorado (Denver, 1907), 15, 25, 296-297, 343-344, 392-394, 501-505, 700; Constitution of Colorado, art. 16, sect. 6.

²⁰ Greeley Tribune, May 31, 1876.

n Constitution of Colorado, art. 16, sect. 5 and 8.

Rather, it was the second and the third legislatures that finally enacted into law the desires of the Greeley farmers.

As has been said, the Greeley farmers did not forget the experiences of 1874. Consequently, in the spring of 1878, they were concerned when Benjamin H. Eaton, who later became a governor of Colorado, began the construction of a canal larger than any yet taken out of the Cache la Poudre. It was to be 70 miles long with a capacity sufficient to irrigate 70,000 acres. Not only did the Greeley farmers become concerned, but also the Fort Collins farmers, who now saw their water rights threatened by the big new ditch. Likewise, farther south on Saint Vrain Creek, pioneer farmers such as L. C. Mead and C. A. Pound became alarmed about their water supply. To these irrigators legislation to protect their water rights seemed necessary.22

The Greeley people again assumed the initiative. Shortly after the elections to the second general assembly, in which J. L. Brush of Greeley and L. C. Mead were elected to the House and Judge Silas B. A. Haynes of Greeley was elected to the Senate, J. L. Brush and Judge Haynes called a meeting of Weld County farmers to discuss the need for legislation on irrigation matters.23 The meeting was held at Greeley on October 19, 1878. It was not very well attended, but there were several from the Saint Vrain, including L. C. Mead, who was elected chairman. In a few hours those in attendance decided that legislation was needed to provide some method of determining prior rights, to provide for the measurement of the streams, and to create stream districts with a public official in each one to superintend the distribution of the water. Consequently, they agreed to call a state-wide meeting to be held in Denver during the first week in December and authorized J. S. Stanger, editor of the Colorado Farmer, to make the necessary arrangements.24

The Denver convention lasted three days, December 5-7, 1878. It was attended by at least fifty-one men, mostly farmers, representing twenty-nine ditch companies or agricultural communities located in the South Platte Valley. The Greeley district was represented by J. Max Clark, B. S. LaGrange, J. D. Buckley, and David Boyd. The Upper Poudre, where many were now convinced of the need for control, sent R. Q. Tenney, J. S. McClelland, J. G. Coy, A. L. Emigh, I. L. Bailey, and John C. Abbott. The Saint Vrain, Big Thompson, and Boulder valleys were also well represented.

The meeting was quickly organized, and L. C. Mead, as chairman, appointed a committee on business, headed by David Boyd, to prepare the agenda. The committee was not agreed as to the necessity for legislation, but the majority reported three proposals for discussion. Two of the proposals, the measurement of the streams and the division of the State into irrigation districts, had been discussed at the previous meeting in Greeley. but the proposal to appoint a State commissioner of irrigation was new and foreshadowed the creation later of the office known as State Engineer. The convention discussed each proposal. Some, like G. W. Harriman of Bear Creek, opposed any legislation as unnecessary and expensive. "If the people of the Cache la Poudre want legislation," he is reported to have said, "let them have a district law and pay for it themselves." The proposal to measure the water in the streams provoked the most debate. J. Max Clark supported the proposal by a reference to the successful measurement of streams in northern Italy, but "Mr. Devinney said it was absolutely impossible to measure the water in the streams so as to be of any use to the farmer." David Barnes of the Big Thompson thought that the streams fluctuated too much for measurement and that it would be more feasible to measure the snow in the mountains. On the third day the members of the convention summarized their agreements in a memorial to the legislature, appointed a committee of five to draft a bill, and adjourned.25

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The memorial proposed a set of institutions for the control of irrigation waters new to Anglo-American experience. Such institutions had not been necessary east of the 98th meridian, and west of it they had not developed beyond the regulation of individual ditches. The memorial urged the application of the idea of regulation to entire streams and to the entire State. In this the South Platte farmers had no precedents, only their needs

²² Boyd, History, 121; Greeley Tribune, Dec. 11, 1878; Adjudication Proceedings in Water District No. 3, Record of Testimony Taken by H. N. Haynes, Book 1:185.

³³ Greeley Tribune, Oct. 9, 1878.

²⁴ Ibid., Oct. 23, 1878; Colorado Sun, Oct. 26, 1878.

²⁵ Rocky Mountain News, Dec. 6, 7, 8, 1878; Greeley Tribune, Dec. 11, 1878; Denver Weekly Times, Dec. 11, 1878; Boyd, History, 121-122.

to guide them. Their proposals grew out of their frontier experience in an arid country and formed another attempt to adapt themselves to a new environment.

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The memorial proposed, first, that the president of the State board of agriculture serve as a commissioner of irrigation, although his duties in this capacity were left undefined. This arrangement was a compromise with the original proposal in order to reduce the operational expenses of the new organization and to make it as economical as possible. Second, the memorial proposed "that measures should be taken for ascertaining and perpetuating the priority of the right of ditches, individuals and farms to the use of water in each irrigation district." Third, the memorial proposed "that the State should be divided into irrigation districts, according to the natural courses of the streams and that commissioners be appointed for the several districts." If carried out the State would have a new administrative system with districts conforming to the watersheds of the streams rather than to the artificial counties and a new set of public officials called commissioners. It was proposed that these stream commissioners be appointed by the county commissioners and that their duties consist of dividing the water in their districts among the users in accordance with their prior rights and of recording in the county clerk's offices data concerning the size of the ditches, time of construction, and similar information. These proposals were a development of Meeker's idea that the river should be made "an irrigation canal subject to . . . superintendence." Fourth, the farmer's memorial to the second general assembly proposed not only that the streams be measured but also that "there should be some uniform method adopted for measuring water entering the different ditches." In addition, the memorial included several other proposals on reservoirs, pol'utions of the streams, and the police powers of the stream commissioners.26

This memorial served as a guide to the committee of five which spent a week in the preparation of a bill which was introduced into the legislature as House Bill No. 22 by L. C. Mead. The committee had the most difficulty devising a method of ascertaining priorities. As it turned

out, this part of the bill was completely rewritten in the committee on irrigation by Judge H. P. H. Bromwell, a lawyer who was sympathetic to the efforts of the farmers. In general, the legal profession was opposed to the proposed institutions, but Judge Bromwell was "strongly impressed with the necessity of legislation on this subject."

Opposition of the bill developed mostly in the Senate. A study published in 1912 gives the impression that the cattlemen opposed legislation of this nature,28 but I have found no evidence to support this view in the case of House Bill No. 22. Although the Rocky Mountain News reported that "there are nineteen stockraisers on the floor of the house," few objections were raised when it was presented for debate, and it passed the House 34 to 4, with 11 absent or not voting.29 In the Senate, however, the bill was stubbornly opposed, not by the cattlemen, but by Senator L. R. Rhodes supported by the senators from the Spanishspeaking communities in the southern part of the State. Rhodes was a young lawyer from Fort Collins who shared the antipathy of many members of his profession to the proposed legislation. He was also a member of the Democratic Party. and in this chamber House Bill No. 22 became a political issue. Most of the Democrats voted against it, whereas the Republicans supported it.30 Whatever his motives, Rhodes' opposition was determined. Three times he attempted to kill the bill. On February 7, 1879, he moved to strike out all of the bill after the enacting clause.

He said the passage of the bill would be detrimental to all the best farming interests in the State. Want of time prevented him from pointing out all the objectionable features of the bill. He saw no use of any legislation on the subject of irrigation. The decisions of the Supreme Courts of California and Nevada have settled all the questions of prior rights, and these precedents are all the law that is needed. The bill should be

²⁷ Colorado, General Assembly, House Journal, 1879, 61, 320; Rocky Mountain News, Jan. 9, 1879; Denver Daily Tribune, Feb. 1, 1879; Boyd, History, 122-123, 129; Colorado State Engineer, Biennial Report, 1883-1884, 117.

25 Hess, "The Beginnings of Irrigation in the United States," Journal of Political Economy, 22:825.

²⁰ Rocky Mountain News, Jan. 8, 11, 1879; Denver Daily Times, Feb. 1, 1879; Colorado, House Journal, 1879, 393-394; Boyd, History, 123.

²⁰ Colorado Sun, Feb. 15, 1879; Fort Collins Courier, Feb. 20, 1879; Denver Daily Tribune, Jan. 10, 1879; Colorado, General Assembly, Senate Journal, 1879, 441.

²⁶ Rocky Mountain News, Dec. 8, 1878; Fort Collins Courier, Dec. 17, 1878; Greeley Tribune, Dec. 11, 1878; Denver Weekly Times, Dec. 11, 1878.

entitled a bill to increase the practice of attorneys in the rural districts.²¹

When the final vote was taken in the Senate a few hours before adjournment on February 9, 16 voted in the affirmative, and 8 voted with Senator Rhodes in the negative.³²

The irrigation law which the legislature enacted on February 9, 1879 was the first of several which created the present system in Colorado for the administration of its streams. It formed 10 water districts, 9 of them in the South Platte Valley. Most of them comprised an entire watershed. The valley of the Cache la Poudre, for instance, became Water District No. 3 as it remains to this day. New districts have since been added until today they number 70 and include every valley in the State. In each district, the law provided for a water commissioner to divide the stream waters of his district among the ditches according to their prior rights. In Colorado today there are 62 such officials. In addition, the law provided that priorities were to be determined by the district courts which were to appoint referees to take testimony and gather proof as to the time the ditches were constructed, together with their original capacities. The law, however, omitted any mention of a State commissioner of irrigation or the measurement of the streams.33

The first referee, as well as the first water commissioners, was appointed in 1879. H. N. Haynes, the son of Judge Haynes, was appointed for the Cache la Poudre, but when he had taken his testimony and had his evidence ready for court action, the lawyers found the method of ascertaining priorities unsatisfactory. Action was therefore delayed until the next legislature could remedy the deficiency.³⁴ The third general

assembly which met in 1881 not only corrected this deficiency but also completed the original program of the Denver convention. It created the office of State Engineer and assigned to this official the duty of measuring the streams of the State in cubic feet per second. In addition, it created three water divisions, administrative units larger than the water districts and comprising entire drainage basins. The South Platte drainage basin became Water Division No. 1 and the Arkansas Valley became Water Division No. 2. Six years later each of these divisions, which now number seven, was provided with a superintendent.35 In this manner, Colorado became "the first State to enact a code of laws for the public administration of streams. . . . "36

Significant as these events are for Colorado, they have an equal significance beyond the boundaries of the State. The legislation of 1879 and 1881 immediately attracted attention in California, Utah, and Wyoming.³⁷ Eventually, each of the eleven Western States—with the exception of Montana—in some measure patterned its system for the public control and administration of water after that of Colorado. The farmers of Greeley evolved an administrative system not only for the State of Colorado but also, with modifications, for most of the arid West.³⁸

²¹ Denver Daily Tribune, Feb. 8, 1879.

² Colorado, Senate Journal, 1879, 441.

²³ Colorado, Session Laws, 1879, 94-108.

³⁴ Boyd, History, 123-135.

S Colorado, Session Laws, 1881, 119-122, 142-161; ibid., 1887, 295-300.

³⁶ Elwood Mead, Irrigation Institutions... (New York, 1903), 143; also Clesson S. Kinney, A Treatise on the Law of Irrigation and Water Rights... (ed. 2, San Francisco, 1912), 3:2435.

³⁷ Colorado State Engineer, Biennial Report, 1883-1884, 115; ibid., 1885-1886, 7; Boyd, History, 131.

³⁸ Wells A. Hutchins, Selected Problems in the Law of Water Rights in the West (U. S. Dept. of Agriculture, Miscellaneous Publication 418, Washington, 1942), 80-109.

THE EVERGLADES, A FLORIDA FRONTIER

JUNIUS E. DOVELL

Division of Social Sciences, University College, University of Florida, Gainesville

It is highly probable that no section of Florida has had so much written about it and yet remains so little understood as the Everglades.* It has been said that Florida was the first State to be discovered and the last to be developed. The truth of this statement is nowhere better illustrated than in the history of this area. As late as 1892 James E. Ingraham, an associate of Henry B. Plant and Henry M. Flagler, led an "exploring expedition" across the middle Everglades from Fort Myers to Miami to asertain the feasibility of a projected railroad connecting Tampa Bay with Biscayne Bay. Since 1905 much of this vast area, formerly under bondage of inundation and traversable only by boats, has been brought into profitable agricultural and commercial production.

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Physical Description. The Everglades comprise that portion of Florida which almost encircles Lake Okeechobee in a narrow strip of land and extends from the shores of the lake at 15 feet above sea level, as a shallow slough 40 miles wide, bounded on the east by a coastal fringe of sand dunes and on the west by the Ocaloacoochee Slough and the Big Cypress Swamp, to the tidewater mangrove swamps at the southern tip. They occupy an area of approximately 2,500,000 acres without many trees and dominated by sawgrass marshes that are nearly level and which are flooded or wet nearly to their surface most of the year. The Everglades rest on a foundation of limestone rock, with a gradient of one-tenth of a foot to the mile, upon which are layers of sand, alluvial deposits, and decayed vegetable matter. The desposits have formed muck or peat to a thickness of 8 feet in the vicinity of Lake Okeechobee, but the soil thins out in all directions toward

the borders of the Everglades. These organic soils, muck and peat, are the result of slow vegetative decay under the combination of low elevation, warm climate, and heavy rainfall. The Everglades form a unit of a large watershed covering the interior of south-central Florida from Orlando to the Gulf of Mexico. Prior to the installation of drainage works, the Everglades were usually submerged from the tidal waves or overflow from Lake Okeechobee on account of the level character of the region, the rocky understrata, and the uneven precipitation of Florida with its concentrated heavy rainfall.

Early History. In the travel accounts of the French and Spanish explorers who touched the Florida coasts in the sixteenth century a few fugitive references relating to the Everglades can be found. These scattered reports give a picture of a savage and wily band of Calos Indians, most of whose settlements were on the west coast from the present locality of Fort Myers southward. These aborigines traveled by canoe between the two coasts, passing through a large body of fresh water in which were numerous islands. At the close of the seventeenth century, after internal conflict and trouble with white settlers, various Indian groups from the Carolinas and Georgia moved into Florida and drove the Calos Indians to the keys and Cuba.

During the first period of Spanish rule, a number of missions were established on the lower coasts, but these missions did not prosper and Spanish interests were turned elsewhere. After Florida became an English colony in 1763, interest in the territory was revived. The Shark River section was described as consisting of swamp and highland, containing much moisture, but with a soil as rich as dung. One traveler, viewing the eastern border of the Everglades, wrote that he believed that a survey of the area would show rich pieces of land in detached spots. The acquisition of Florida by the United States in 1819 found little attention paid to the southern end.

The purchase of Florida opened another part of the continent to American settlement. Vari-

^{*}This article is a summary of the author's study, A History of the Florida Everglades (unpublished Ph.D. dissertation, University of North Carolina, 1947). The summary appeared in the University of Florida, College of Business Administration, Bureau of Economics and Business Research, Economic Leaflets, 6(5):[1-4], (6):[1-4] (April, May 1947), and it is here printed with the kind permission of Professor Roland B. Eutsler, editor of that publication.—Editor.

ous treaties were made to remove the Indians to the territories beyond the Mississippi River. Many of the natives refused to migrate voluntarily, hence the call for the use of armed force to move the Indians. The several Seminole Wars were but a phase of the general movement in the United States in the nineteenth century to push the Indians farther west. The Seminole conflicts were a series of raids, ambushes, and guerilla warfare. During the years 1836-1842 the Seminoles were gradually hunted down, the large majority of them being taken captive and sent to the western lands, while the remainder escaped into the areas south of Lake Okeechobee and the Caloosahatchee River. An undeclared truce was called in the summer of 1842 by President John Tyler who estimated that there were less than 250 Indians left in Florida. Among the results of the war were the reports brought back regarding the hitherto unknown fertile lands and abundant waters of southern Florida.

First Interest in Reclamation. In the Saint Joseph constitution, adopted by the convention which assembled in 1838, it was stated that a liberal system of internal improvements was essential to the development of the natural resources and that such work should be encouraged by the government of the proposed State. Ten months after Florida became a State in March 1845, its first legislature submitted a resolution to the Federal Congress concerning certain land in the peninsula which previously had been considered valueless.

This resolution and others which followed were carried to the floor of Congress by Senator James D. Westcott, Jr., in 1847. Westcott prevailed upon Secretary of the Treasury Robert J. Walker to send an agent to make a reconnaissance of the lands and to report on the practicability of reclaiming them. Walker designated Thomas Buckingham Smith to survey the Everglades in order to obtain the desired information. The report by Smith in 1848 represents the first authentic publication on the Everglades. He advanced the idea that by cutting the rim of the glades, on the coasts at the heads of the various streams that received their initial waters at low places in the rim, some 4 feet of water might be drained off the area. It was Smith's belief that the land so reclaimed would be profitable for the cultivation of corn, sugar, rice, cotton, and tobacco.

State Attempts at Reclamation. Although Senator Westcott and other representatives from Florida urged the Federal Government to cede the Everglades to the State, the first oppotunity for reclamation materialized, as an answer to Arkansas and other States seeking inundated lands within their borders, in the Swamp and Overflowed Lands Act of 1850. Under the terms of this act, Congress turned over to the several States their wet lands for reclamation through their own efforts.

The Florida legislature in 1851 passed an act to secure the wet lands lately so granted and to provide a board of internal improvement composed of State officials. The act consolidated various grants made to the State in a separate and distinct classification to be known as the Internal Improvement Fund. All lands and funds arising from the sale of such lands which were a part of this fund were vested in five trustees: the governor. comptroller, treasurer, attorney general, and the register of State lands (later commissioner of agriculture), and their successors. In addition to making stipulations in regard to the sale, transfer, or investment of proceeds from lands sold out of this fund, the act provided for aid to railroads, canals, and other works of improvement. The trustees were authorized to subsidize public improvements with the donation of State lands and to pledge the fund as a guarantee for interest on bonds floated by private railroad and canal companies. From 1855 to 1872 most of the lands in the fund were pledged for the construction of railroads and canals.

The War between the States from 1861 to 1865 put a temporary end to all plans for internal improvements until well past the three-quarter mark of the nineteenth century. Activity in south Florida during these years was limited in the main to the cattle industry. During Reconstruction many families settled in the Manatee-Fort Myers area and devoted their energies to cattle grazing. In the drier months of the year, the cows were pastured on the flats bordering the Everglades.

At Tallahassee, meanwhile, the trustees of the Internal Improvement Fund were receiving proposals to ditch and drain land in or near the Everglades. In 1866, the trustees considered several communications offering to reclaim lands adjacent to the Caloosahatchee and Kissimmee rivers as well as Lake Okeechobee and tributary areas. The trustees agreed to deed one-half of all such

lands reclaimed if the work was begun within one year and completed in seven years.

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The Disston Drainage Contract. During the Civil War and Reconstruction, the railroads defaulted in their bond payments, and the carriers passed into the hands of the trustees of the Internal Improvement Fund. Interest coupons on the bonds were in default, and in 1869 Francis Vose, one of the large bondholders, instituted suit to enforce interest payments by the Internal Improvement Fund. By order of the Federal District Court, the Internal Improvement Fund was placed in receivership in 1870. The ordinary sales of land did not suffice to keep the debt from increasing, and the fund was being eaten up by compound interest and expenses of litigation. In the years from 1870 to 1880, the trustees made numerous attempts to sell enough of the several million acres of the fund's lands to satisfy their creditors.

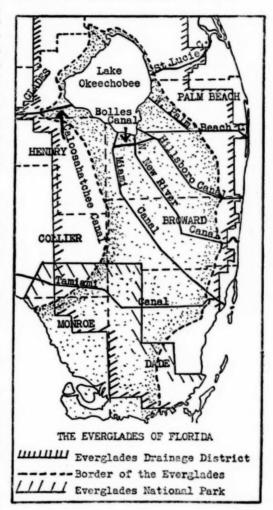
Hamilton Disston of Pennsylvania became interested in overflowed Florida lands and submitted a proposition to the trustees relating to drainage in January 1881. Shortly after his inauguration in the same month, Governor William D. Bloxham sponsored a contract with Disston providing for the drainage and reclamation of all overflowed lands south of Township 23 East and east of Peace Creek. Under this contract, Disston was to receive the alternate sections of all land reclaimed through his enterprise.

A hitch developed in the Disston contract when it was found that under the decree of the United States court placing the fund in receivership, the trustees could not bind the fund without the approval of the creditors. Bloxham persuaded Disston to purchase 4,000,000 acres of overflowed land for \$1,000,000, a deal completed in June 1881, which enabled the trustees to settle their debts and placed the fund in an independent position with regard to further land disposition.

Dredges assembled by Disston at Fort Myers and Kissimmee began working in the Caloosahatchee and Kissimmee rivers. Most of the drainage efforts were devoted to the area around Saint Cloud, where extensive drainage works were installed and agricultural production undertaken. The drainage venture was largely unsuccessful as the Disston canals were too small to handle the flood waters in the rainy seasons.

The long-range value of the Disston works, however, cannot be overestimated as a step in the

future development of the Everglades. They proved that the waters could be lowered but that the works would have to be adequate to meet high-water conditions and would have to be maintained. The results of the agricultural enterprises at Saint Cloud, particularly sugar plantings, proved what could be done on drained land.



Origin of the Everglades Drainage District. In the period from 1888 to 1905, the trustees of the Internal Improvement Fund received a number of proposals to drain all or part of the Everglades. In 1898, the trustees contracted with the Florida East Coast Drainage and Sugar Company to reclaim 800,000 acres of land in the Everglades near Miami, but the contract was allowed to lapse. The inability of private capital to overcome

the difficulties of drainage and reclamation in the Everglades so impressed William Sherman Jennings that during his term as governor the ground work was laid for actual drainage operations. In 1903, Jennings received a patent to the lands south of Okeechobee in the name of Florida. He secured the services of Charles G. Elliott, engineer in charge of drainage investigations in the United States Department of Agriculture, who surveyed glades lands in the Miami area and estimated that the drainage of the area would necessitate dredging to a grade of 0.3-0.4 feet per mile to the center of the area. Elliott declared that it would be "necessary to dredge all of the natural streams into or through the Everglades as far as the divide between the eastern and western slopes."

The Florida constitution prohibited Jennings from seeking a second term, but the cause of Everglades drainage was carried into the governor's race of 1904 by Napoleon Bonaparte Broward. Using a colored map, Broward made the campaign a virtual referendum on the Everglades proposition. Winning the governorship, Broward pushed his plans for drainage through the legislature in 1905.

In late May 1905, the legislature passed an act which created a board of drainage commissioners empowered to establish a system of canals and dikes to drain and reclaim the inundated lands of Florida. The commissioners were authorized to levy drainage taxes in districts of their creation and were given the powers of a body corporate. The members of the board were the same officials who consituted the trustees of the Internal Improvement Fund. Several of the large landholders were successful in enjoining the drainage board from collecting taxes, so that a new law was drawn on much the same lines. This law, passed in 1907, defined the boundaries of the Everglades Drainage District, encompassing most of the mainland area south and east of Lake Okeechobee, and provided a 5-cent an acre drainage tax.

The First Land Boom. Meanwhile, Broward had assembled two dredges which were operating in the upper reaches of the New River at Fort Lauderdale. By 1909, the original dredges had cut their way 14 miles into the Everglades, and two new dredges were added. Land sales by the trustees totaled \$35,000 in 1907 and \$123,000 in 1908. From 1907 to 1910, the trustees sold numerous large tracts to real estate operators. For example, in 1908, Richard J. Bolles bought 500,000 acres at \$2 an acre to be paid over a 6-year

period. The Bolles land sales companies subdivided the purchase and sold 10,000 farms in 10-acre tracts at prices varying from \$20 to \$24 an acre. The "boom" became so loud and the clamor so great that the Internal Improvement Fund trustees issued a statement denying any connection with the land companies. The Everglades drainage operations, giving rise to land selling through high pressure salesmanship with a large amount of speculation, were subjected to a great deal of criticism and became a subject of national agitation. A congressional committee investigating expenditures in the United States Department of Agriculture in 1912 found that one of the drainage engineers had issued glowing and unsound reports on the project. A resulting panic among purchasers of lands saw the land bubble collapse. The consequent failure to sell State lands for funds to continue drainage operations hampered that work in the Everglades.

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Continuing criticism resulted in the appointment of the Florida Everglades Engineering Commission in 1913. This commission, headed by Isham Randolph, endorsed the gravity canal system of drainage as instituted by the Drainage Board but added a recommendation for a control canal for Lake Okeechobee. The "Randolph plan" was adopted, and subsequently a contract was let for the excavation of the Saint Lucie Canal to control the waters of the big lake.

By 1913, there was marked progress in the Everglades, but the enterprise was embarrassed financially. To that date, \$2,150,000 had been spent completing 142 miles of canals and two locks. The 1913 legislature enacted laws enabling the drainage officials to bond the lands in the district. The first issue of \$3,500,000 in bonds was sold in 1917. By 1925, \$10,500,000 worth of bonds had been sold by the drainage district.

Glades Life in the Early Days. Scattered references by travelers, naturalists, and engineers to settlers on the Everglades borders or the shores of Lake Okeechobee can be found, but there was no real settlement in the Everglades until after 1910. Several pioneers, led by John Newhouse and Lawrence Will, began a settlement at the crossing of the Bolles and North New River canals 5 miles south of Okeechobee's south shore line in 1914. There were shanties at the mouth of the Lauderdale Canal and here and there along the lake shore. According to Newhouse the real estate salesmen said: "Take a tent, a bag of beans, and a hoe; clear a few rows in the sawgrass, plant the seeds

and you will have an income.... That may have provided an income for the land offices, but the settlers found out differently." The troubles of the pioneers included the boating of supplies from Fort Lauderdale 50 miles up the canal, the lack of skilled labor, and various pests including mosquitoes, snakes, and alligators.

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The land was cleared by hand, taking one man two months to clear an acre. Once cleared and seeded, the plants grew wonderfully and then for unexplained reasons would wilt and die. The settlers called it the "reclaiming disease." Setbacks from frosts, soil troubles, and plant diseases dulled the optimism of many settlers and they left, but others came to take their places. Gladescrest, at the intersection of the Hillsboro and Bolles canals, counted 200 citizens in 1915. In a few years the community had disappeared. But other hardy settlers stuck it out and by experimenting and varying their crops of beans, potatoes, cabbage, lettuce, and others, managed to make a living.

By 1917, the development of a townsite at the Okeechobee entrance of the Caloosahatchee Canal saw the beginning of Moore Haven. In a period of low water in the late teens, squatters settled on the lake shore with intentions of homesteading, but in a year or two high water forced them off and several settled at the intersection of the North New River and Hillsboro canals, near the site of Belle Glade. By 1921, there were sixteen settlements on or near Lake Okeechobee with an estimated total population of 2,000.

In 1917, W. J. Conners of Buffalo, New York, bought a section of land on the West Palm Beach Canal and inaugurated some small truck and dairy farms, but these failed. In 1923 Conners began building a highway from Okeechobee City to West Palm Beach along the lake shore and the canal of the same names. The Florida East Coast Railway reached Okeechobee City from New Smyrna in 1915. The Atlantic Coast Line Railroad reached Moore Haven from Haines City in 1918 and was extended to Clewiston in 1922. The Florida East Coast extended its line from Okeechobee City to Belle Glade in 1926 and subsequently the two railroads joined at Lake Harbor.

When the North New River Canal was opened in 1912, boats from Fort Lauderdale had been added to existing Kissimmee-Caloosahatchee river-boat lines to Fort Myers. Mail boats, carrying freight and passengers, made regular trips around the lake, later using the West Palm Beach Canal to the east coast. Highways were at first merely raised ridges of muck that often burned up in dry weather. Conners opened his macadamized highway in 1924, and though the tolls never repaid the initial investment, the traffic was heavy. The prospects of making a good crop on the rich muck soil attracted many new settlers to the region.

The Second Land Boom. Interest in the use of glades land for sugarcane production became active in the last years of the first World War. In 1919, 60 acres of cane were grown at Pelican Bay, and the crop was shipped to a Jacksonville syrup mill. In the same year, the Pennsylvania Sugar Company began planting cane on a large tract northwest of Miami. The company later erected a 1,500-ton sugar mill, but soil deficiencies and lack of water control caused the operations to cease. About the same time sugar operations began at Canal Point under the direction of Frank E. Bryant. These latter operations were more successful and were later combined with the Dahlberg-Celotex interests to form the Southern Sugar Company which, in turn, gave way to the present United States Sugar Corporation.

In 1921, the United States Department of Agriculture established a sugarcane breeding station at Canal Point. In the same year the legislature of Florida provided for the establishment of an agricultural experiment station for the Everglades area near Belle Glade. The work of this station subsequently proved of great importance in the agricultural development of the region. This included the discovery of the use of trace elements of copper, manganese, zinc, and boron in the successful handling of these soils and a study of the related problems of soil and water conservation, general fertility requirements, plant and animal adaptability by selection and breeding as well as disease and insect control.

Despite alternating extremes of high and low water levels, the lake shore section of the Everglades grew in the early 1920s even if they did not become prosperous. Estimates of the 1924 crop values and acreage averaged \$2,500,000 and 6,000 acres. Tomatoes, beans, peas, peppers, and potatoes made up the bulk of the crops, with 1,200 carloads being shipped through Canal Point alone.

The post-war years found Florida enjoying another of the periodic land booms. The Everglades were affected in a manner similar to the boom a decade earlier. Private enterprise built such facilities as the Conner's Highway, the railroad extensions from Okeechobee to Belle Glade, Moore Haven to Clewiston, and from Coleman to Miami. Drainage subdistricts were organized in the upper Everglades and along the eastern border to supplement gravity drainage through the excavation of lateral canals and installation of power-driven pumping units. The Dahlberg interests were developing sugarcane planting and sugar mill operations on their properties along the lake shore. Land sales activity drew thousands of investors and hundreds of settlers to the area. Governor John W. Martin, in his 1925 message to the legislature, announced that Florida was committed to the eventual reclamation of the Everglades and that there could be no turning back.

The Martin Bond Issue. The year 1922 was a black one for the Everglades. Rainfall through September was 10 inches above the annual average, and the towns of Bare Beach, Clewiston, Moore Haven, and Okeelanta were under water for weeks. By 1924, the high waters had receded, and an unusually dry winter in 1926 witnessed an unprecedented series of grass and muck fires. Heavy rainfall through the spring and summer extinguished the fires and filled the lake. In late September a tropical hurricane blew the water out of the southwest end of the lake, flooding Moore Haven and drowning over three hundred persons.

The Moore Haven disaster awoke the people of Florida to the fact that the Everglades area was a hodgepodge attempt at reclamation. Governor John W. Martin took his stand on the 1913 Randolph drainage plan and defended his predecessors by declaring that the project had never been adequately financed and that the only answer lay in floating a new \$20,000,000 bond issue. The reaction in the Everglades was, in part, expressed by Howard Sharp in his Everglades News when he charged that nothing had been drained but the State treasury.

Through the fall and winter of 1926-27, the Martin bond proposal furnished a lively subject for public discussion and newspaper reporting throughout Florida. In March 1927, the board of commissioners of the Everglades Drainage District contracted with three engineers to review the work completed in the area and to recommend future operations. In its report the Everglades Engineering Board of Review suggested that future drainage should be completed under a unit plan of development in view of the reclamation accomplished under the Randolph plan. These

engineers recommended a revised plan of increased outlet capacity for Lake Okeechobee, a new system of east-west canals in place of the long north-south diagonal canals, installation of pumping stations, and a 27-foot levee from the eastern to the southwestern corners of the big lake. They found that outstanding bonds amounted to \$10,250,000, that \$15,000,000 had been spent on construction and maintenance, and recommended a further expenditure of \$25,000,000.

In a message to the 1927 legislature, Martin asked that body to authorize the \$20,000,000 bond issue which would enable the drainage operations to continue and place the reclamation work on a sound financial basis. The legislature complied with Martin's request, but litigation prevented the delivery of the bonds, and none of them were ever sold. By June of 1927 the Drainage Board was without funds and discontinued all but maintenance operations. However, very little work was done by State agencies after 1928.

The 1928 Hurricane and Federal Participation. When the Everglades Drainage District was created in 1907 and amended in 1913, it included an area just west of Miami. In this locality there had since developed metropolitan suburbs, and as the Martin Bond Act provided for ad valorem taxes it was natural that property owners would offer opposition on this tax feature. The Dade Drainage District, a subdistrict, covered part of the region involved, and in August 1927, its supervisors secured the services of Arthur E. Morgan to advise the board on problems of their bailiwick. This prominent hydraulics engineer transmitted his report in October, stating that in offering advice on the Dade district it was necessary to consider the problems of the Everglades Drainage District at large.

Morgan noted that the success of the Everglades project would depend on well-designed legislation, effective engineering design, adequate financing, and practical reclamation and development rather than political considerations. He pointed out that if money to continue the work was hard to secure or that unusual terms had to be offered the development was unsound or the management was bad. He suggested the project be divorced from the State administration, home rule for the district, public review of plans, and efficient over-all plans for future progress. With good administrative, economic, and financial policies, the Everglades, wrote Morgan, may become one of the chief economic resources of Florida. He proph-

esied, in conclusion, that "Present agricultural operations in the district clearly demonstrate the desirability of reclamation. The character of the soil and the climate afford an attractive prospect, and some owners will continue to develop their holdings as best they can under any conditions that may prevail."

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In April 1928, the United States Army Engineers had recommended the excavation of a channel from the western edge of the Everglades district through the Caloosahatchee River to an increased depth that would provide an additional 2,500 cubic feet per second discharge from Lake Okeechobee. In the following September, a second hurricane whipped the waters of Lake Okeechobee onto the southern shore, and a night of horror was followed by a day of death. At least 1,800 persons were drowned in this tragedy which shocked the Nation, for only in the Galveston flood in the early part of the century is a greater American catastrophe to be found.

After that disaster the Army Engineers reviewed previous reports and made further recommendations for the Okeechobee-Caloosahatchee drainage areas in increased channel discharge capacities for the Caloosahatchee Canal and River and Taylor's Creek as well as levees for the northern, eastern, and southern shores of Lake Okeechobee. 1930 Rivers and Harbors Act included an authorization to the Secretary of War to provide larger channels, levees to a height of 31 feet, and other works of protection and navigation at a cost of approximately \$10,000,000 provided other interests contributed \$2,000,000 to the proposed works. Since the assumption by the Federal Government of the levee and channel construction program in 1930, the Nation has spent some \$20,000,000 on new works and maintenance. Various Rivers and Harbors acts passed since 1930 have allowed local contributions to terminate after \$500,000 had been received. The Army Engineers have supervised the building and maintenance of 85 miles of levees with a varying height of 34 to 38 feet above sea level, storm gates at canal entrances, channels, and other protective works. The Federal Government continues to maintain the levees and channels and exercises full control over water levels in Lake Okeechobee.

Default and Refunding of the Debt. In the elections of 1928 Doyle Carlton was elected governor of Florida on a platform which had promised, in part, to secure "home rule" for the Everglades Drainage District and to put the drainage opera-

tions on a "pay as you go" basis. To January 1, 1929, a total of almost \$18,000,000 had been spent by the district on expenses of reclamation and protection. In a report filed on that date by F. C. Elliot, chief drainage engineer of the district, outstanding bonds were set at \$10,141,000 and assessed value of property in the district at \$106,000,000. The estimated population of the district was set at 48,000, paved roads at 586 miles, and railroads at 210 miles. The chief engineer estimated land values in the district in 1905, based on average prices of State lands sold, at \$5,391,000; on the same basis in 1927, land values came to \$300,000,000. With the total cost of drainage figured at \$18,000,000, it was ascertained that for each \$1,000,000 spent on reclamation by the district property values had increased over sixteen times. Emphasis was given to the fact that other than paying taxes on its lands and contributing some of the proceeds from the sale of lands granted to the State in 1850, the State of Florida had never given any money to the drainage work.

Governor Carlton secured the passage of an Everglades Drainage District bill giving the board of commissioners ten members, five State officials serving ex-officio (governor, comptroller, treasurer, attorney general, and commissioner of agriculture) and five members to be appointed from residents of the district. In 1931, Carlton sponsored a second bill, setting up true "home rule" for the Everglades. The 1931 act authorized a five-man board of commissioners appointed, in staggered terms, by the governor from bona fide residents of the drainage district. The act was of little real aid at that time as drainage tax collections were at a virtual standstill, and the board was enjoined by court order from spending other than small sums for maintenance as a result of the default in 1931 on bond interest and maturity payments. In July 1932, the finances of the district reached such a low stage that the board of commissioners released all employees, affirmed all liabilities, and expressed a willingness to cooperate with its creditors. During the 1930s, a number of attempts were made to float refunding loans, but the worldwide depression prevented the drainage officials from making any material progress.

From 1932 to 1942, the Everglades Drainage District hovered on the edge of bankruptcy proceedings. The bondholders enjoined the board from spending other than a one-mill maintenance tax, and drainage works were completely halted.

In June 1936, the commissioners sought a loan from the Reconstruction Finance Corporation, but were unable to reach an agreement with their creditors. At that time, there was \$2,000,000 in past due interest coupons on outstanding bonds. The 1941 legislature, under the leadership of Governor Spessard Holland, enacted a law under which negotiations were begun toward eventual refunding of the debt. The act provided for a receiver in case the board was unable to refund the debt, cancelled unpaid drainage taxes, and set a scale for the purchase of tax-burdened lands, thus paving the way for these lands to be placed in a tax-paying position. Under the provisions of this act arrangements were made in 1942 whereby the bonded debt of \$9,400,000 matured coupons of \$3,600,000, unpaid canal construction of \$1,800,000, and miscellaneous debts of \$1,200, 000 were compromised for a Reconstruction Finance Corporation refunding bond issue of \$5,660,000. Tribute should be paid to the chief executive who managed the refunding process, for as one of the drainage district officials said: "Within sixty days from the time Governor Holland took over he had a deal with the bondholders, necessary legislation was passed and the whole refinancing program was assured of success . . . a deal upon which others had spent ten years trying to accomplish."

The Contemporary Scene: Agriculture. Writing about the American tropics during the 1930s, one traveler found that the Everglades were better understood though there were "still large portions of them that remain unexplored, virgin territory—America's last frontier." Another traveler observed "a new race of pioneers.... creating a fertile agricultural region in the heavy soil of the Everg'ades," where the real story of this "American Valley of the Nile" did not start until 1929.

Prior to 1939, 75 percent of the farms in the lake region of the upper Everglades were operated on a tenant basis. Farming was speculative and involved combating weather conditions of frost and water levels in order to take advantage of high vegetable prices prevailing in the northern markets during the winter. These tenants were often called "suitcase farmers" since many of them entered the section, leased land, and lived out of a suitcase until their crops were made and sold in sixty days, more or less. The hazards suffered by the early pioneers were overcome to some extent through federal control of the lake levels, trial and

error, information from the State experiment station, and local water control.

Since 1930, the shift has been from tenancy to farm ownership. Land cultivation in Palm Beach County increased 132 percent from 1930 to 1940, while farm ownership increased 241 percent. Since 1940, the shift in land utility has been from tenancy to a cash basis and outright ownership. The over-all size of holdings has increased, but there are many farms of 10 to 40 acres in cultivation; nonetheless, the area lends itself to farming on a mechanized scale to the extent that Palm Beach County has been said to lead the Nation in this respect.

The ideal size for a farm in the Everglades, according to economists who have studied the area, is 640 acres. The average cost for raw land in the early 1940s was figured at \$30 an acre, with preparation, ditching, and pumping equipment averaging \$45 an acre, plus \$35,000 for equipment, housing, and miscellaneous machinery. The trend in 1945 was toward diversification on the large holdings, illustrated by that of Mrs. Ruth S. Wedgworth who planted 400 acres in Irish potatoes, 175 acres in celery, and 425 acres in other vegetables, sugarcane, corn, and pasturage for finishing cattle.

The trend toward diversification has been brought about by the desire to stabilize financial returns, provide for soil conservation, utilize the lands through the summer, encourage year-round demand for labor, and process local produce. Three items hold out promise for staple crops: sugar, stock finishing, and fiber. Of these, sugar is established.

Stock finishing offers a good profit in beef production. The introduction of Brahma cattle, a breed which can cope with the vagaries of a wet, subtropical climate and the pests common to it, as well as thrive on the grasses which do well in the Everglades may help. The United States Sugar Corporation has encouraged the use of its molasses byproduct mixed with orange pulp from the citrus canneries of central Florida for cattle finishing or fattening. Many Everglades farmers purchase steers from Florida ranchers to fatten on glades grasses, especially during the drier winter months when pastures north of Lake Okeechobee are dormant.

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The prospects for fiber as a staple crop are very bright. The principal fiber crop grown in the Everglades is ramie, which in its decorticated form is known to the trade as China grass. Grown by the Chinese for three thousand years, the fiber is one of the strongest, if not the strongest, of all known vegetable fibers. The difficult problem in the handling of this crop has been decortication, the step which involves the separation of the inner bark in which the fibers are held together by the gums and pectins of the plant from the rest of the stalk. In the Orient, decortication has been done entirely by hand, and thus fiber produced under such conditions is feasible only where labor is very cheap.

In 1946 there were approximately 2,000 acres of ramie being cultivated in the Everglades, and two mechanized decortication plants were in experimental operation. Fabric woven from ramie has been called the "everlasting cloth" which never wears out. The plant is a perennial, disease and insect resistant, has low labor needs, and can be harvested three times a year. On March 31, 1947, the United States Department of Commerce announced that its office of industrial research and development would provide \$50,000 to supplement work being done by the State of Florida and the United States Agriculture Department to carry out additional research on the possibilities of ramie in the Everglades. While prospects for ramie in the Everglades are relatively bright, there are a number of factors requiring intensive study before much can be said of its future in this area.

Industry. Indicative of the growth and productiveness of the Everglades from 1928 to 1946 is the progress made by the sugar industry. The Dahlberg-Celotex interests, seeking a new source of bagasse as a result of the decline of their sugarcane plantings in diseased Louisiana fields, organized an auxiliary agency known as the Southern Sugar Company. This subsidiary carefully experimented with water control and drainage works for two years before their fields were planted to cane in the 1927–28 season.

Cane grinding began in the Clewiston mill, which was partly constructed from the Hialeah mill of the Pennsylvania Sugar Company and the Bryant mill at Canal Point, on January 14, 1929. In that year 13,000 tons of cane produced 745 tons of 96-percent sugar; in 1929–30, 202,000 tons of cane produced 14,468 tons of sugar, and in 1930–31, 351,000 tons of cane produced 26,465 tons of sugar. By 1945–46, the United States Sugar Corporation, successor to the Southern Sugar Company, produced 100,000 tons of sugar from their 25,000-acre

cane fields as well as the crop from 5,000 acres sold to it by private planters.

The sugar corporation operates the world's largest single tandem raw-sugar mill, supplied by means of a private railroad with 12 locomotives and 500 freight cars. It maintains 960 miles of roads and drainage canals and provides 7 villages for 6,000 field hands. The cane grows throughout the year, and as many as 12 harvestings have been made from one plot, although some growers have replanted more frequently in an attempt to improve the sugar content and lengthen the harvesting season from early fall to late spring. Since 1934 Federal limitations, restrictions, and prohibitions have affected the possibilities of expansion of Florida's sugar industry, and even with the suspension of the sugar quota system during World War II potential capital has been hesitant to take advantage of the opportunities offered in the Florida Everglades.

In view of the limitations on sugar production, the United States Sugar Corportion has turned its attention to a program of agricultural and industrial diversification. On its extensive holdings of 150,000 acres from Canal Point to Moore Haven, the corporation has devoted large plots to the cultivation of lemon grass and pastures. From the lemon grass an oil, utilized in the manufacture of perfume, varnish, and soap, is processed in a steam-distillation plant at Clewiston.

Most of the vegetable crop of the Everglades, 20,000 carloads in the 1945-46 season, is shipped as a fresh pack under refrigeration to northern markets. A \$100,000 cannery, established at Belle Glade in 1942, contracted for the product of 2,500 acres of beans in that year. This enterprise points the direction for further development of the industrial possibilities south of Lake Okeechobee.

The Conservation Movement. The general land policy of the several governors and officials of Florida since the inception of the Internal Improvement Fund in 1851 has ever been to dispose of the public domain in large blocks, such as the Disston and Bolles sales, and to suggest the subdivision of these large tracts through private channels. The various boards of engineers have reported that only by progressive drainage of small areas could the Everglades successfully be made habitable without serious consequences of excessive costs, too rapid development for land utility and soil subsidence.

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From 1910 to 1947 the weather cycles have caused "the farm problem" of the Everglades to revolve around the question of whether the soil would float away in times of heavy precipitation or dry up and then either burn or blow away in very dry seasons. As early as 1927, the Everglades Experiment Station began calling attention to the dangers of overdrainage. It was suggested that the spill of Lake Okeechobee be diverted onto the uncultivated glades to prevent fires, conserve the soil and ameliorate the winter temperatures. A program of soil conservation was thus advocated that had been lacking because of the inadequate facilities for handling surplus lake waters, a solution made possible through Federal aid in constructing lake dikes and control canals. Fires blazed in the muck soils in 1939, 1941, and 1943, while freezes occurred in 1935 and 1939; nonetheless heavy rains caused much damage in 1940, 1946, and 1947.

Scientists, naturalists, and engineers realized from time to time that uncontrolled and haphazard reclamation in the Kissimmee-Okeechobee-Everglades watershed would finally result in unpredictable confusion in the natural balance of the region. The several boards of public and private engineers had all recommended progressive drainage. The answer as to why their advice was not followed may be found in the words of W. Turner Wallis, engineer and general manager of the Everglades Drainage District, when he said, in May 1944, that every one of the thousands of owners of Everglades lands "believed in principle that the only sound policy was one of progressive drainage, provided, however, his land was to be among the first to be drained."

The greatest problem facing the Everglades is that of soil subsidence. About one-half inch annual loss in elevation can be expected under the most favorable water table compatible with crop vields. The land in some sections of the upper glades has settled as much as 6 feet in its elevation in the last thirty years. It has become a common practice for residents on the muck soils to add a new doorstep to their houses every two to three years. At the present rate of subsidence it is conceivable that the Everglades, if not more carefully handled, will be a memory from the agricultural standpoint within seventy-five years. Since only 500,000 of the 4,500,000 acres of the Everglades Drainage District are overlain with muck of 5-foot depth or over, it has been urged that

at least 3,000,000 acres be set aside for water and wildlife reservations, and that the remainder be used for cattle grazing or left in its natural state. The present planning of the physical requirements of this extensive region are greatly facilitated by the soil and engineering surveys recently completed by the Soil Conservation Service of the United States Department of Agriculture in cooperation with the Florida Agricultural Experiment Station and now in process of preparation for publication.

The Everglades National Park. The Florida Federation of Women's Clubs prevailed upon the legislature in 1915 to set aside several hundred acres of hammock and muck land, surrounding Paradise Key, southwest of Miami near the eastern border of the Everglades. The establishment of Royal Palm State Park was the first step toward the development of a national park as a refuge and retreat to preserve the flora and fauna of the only continental tropical area of the United States. Legislative action, from 1929 to 1945, by the State of Florida was directed toward the consummation of the projected park. Opposition from sportsmen and commercial petroleum interests delayed the project. Pending the final acquisition of State and private lands for the proposed park, an agreement was worked out whereby the Fish and Wildlife Service of the United States Department of the Interior took over supervision of 1,600 square miles south of the Tamiami Trail, from Royal Palm State Park on the east, to Florida Bay on the south and up the coast to Everglades City.

Governor Millard Caldwell, in an agreement with the Secretary of the Interior, Julius A. Krug, asked the 1947 legislature for \$2,000,000 to guarantee the payment of the costs in the condemnation of 500,000 acres of privately owned land necessary to complete the 1,355,000-acre park. In April, the legislature made this appropriation, and the bill was approved by the governor. The park which was dedicated on December 6, 1947 will enable the United States to preserve this primitive wilderness with its native plants and wild-life for posterity.

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Conclusion. The alteration of the physical characteristics of a region almost invariably results in the creation of new problems relating to the utilization or conservation of that area. The drainage of peat and muck lands has almost always resulted in too low a water table and consequent overdrainage which, in turn, causes excess

sive soil oxidation and subsidence. Records of organic soil reclamation projects in other parts of the world show that deposits of these soils as deep as those found in the Everglades have entirely disappeared under agricultural development.

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The permanence of the soils and the life of the agricultural and commercial enterprises in the Everglades are challenged; the investment in improvements and drainage facilities is threatened; and the unreclaimed areas and east-coast metropolitan water supplies are all jeopardized by the lack of adequate water control. The tremendous value of the Everglades under proper management makes the present system of waste a matter of concern to the entire Nation. In a speech before the Florida State Bar Association in Tampa on March 7, 1947, Governor Caldwell said that "ninety percent of the people in Florida want something done" about water conservation "but not one percent of the people will concern themselves with it." Water-saving measures, he prophesied, "will lay in the doldrums until some great major

disaster overtakes us. Every year millions of dollars worth of land in the Everglades are destroyed. In 50 years there will be no Everglades. And yet we sit by and mumble about water conservation."

The problems of overproduction and marketing of vegetable crops are far from solved. Also unsolved is the problem of suitable agriculture or industry that may someday use the remainder of the area that can be made available for settlement since estimates of the total area in production today do not exceed 125,000 acres.

In all of these important questions there is one asset available: the great admiration and respect the Everglades farmer has for the land he is working. This conscious love of the land, which springs largely from the prolific fecundity of the black soil, will bind owners and tenants alike into a vigorous observance of rules, once leadership and plans have been developed that will show them what they must do if they would protect this fertile earth against complete destruction.

THE ARCHIVAL RECORDS OF THE AGRICULTURAL ADJUSTMENT PROGRAM

CARL J. KULSRUD

The National Archives, Washington, D. C.

It was generally recognized in the early 1930s that American agriculture was on the brink of ruin, and that, as a consequence, the Nation's economic system was out of balance. This state of things was discussed in the press, in the classroom, in the pulpit, and in chambers of commerce throughout the country. Each of the major political parties acknowledged the gravity of the situation. Toward its solution each advocated active intervention by the Federal Government. In their platforms both declared that the Nation was dependent upon the prosperity and welfare of agriculture. Both parties pledged themselves to the enactment of measures that would place agriculture on a basis of economic equality with industry, and both advocated the control of agricultural production to such volume as would balance supply and demand.

An adjustment program designed to place agriculture on a basis of economic equality with industry, as advocated by both major political parties, was inaugurated under authority of the

Agricultural Adjustment Act of 1933. In his report to the President in 1936, the Secretary of Agriculture reviewed the accomplishments of the adjustment program during its first period of operation, that is to say, from its beginning in 1933 until 1936, when it was modified in consequence of the Supreme Court's invalidation of those provisions of the Adjustment Act that provided for processing taxes and production control. According to the Secretary's report, agriculture had made great progress toward financial rehabilitation. All groups of farmers and all agricultural regions had participated in the program and had shared in the recovery. The farmers' recovery served to revive urban trade and to brighten the outlook for all classes. The effects of the adjustment program during its second period of operation, that is, from 1936 until the entry of the United States into World War II, was equally salutary, according to various appraisals submitted by the operating agencies. Opponents of the program, on the other hand, expressed themselves freely in

disparagement of it, saying that it was foisted on the country by powerful pressure groups. Some derided the program as a measure of planned scarcity; others declared that the farmers were paid by the Federal Government for doing nothing. Such, in general, were the views of the sponsors and the opponents of the various efforts made to revitalize agriculture.

The time may now be at hand when research scholars may wish to study and appraise this agricultural adjustment program, in respect to its origin, history, and achievements. There is in the National Archives a large volume of records available for such studies. It is the purpose of this article to indicate what these records are, and to describe them, at least to the extent that the description may serve as a guide to study projects and as a finding aid for reference purposes. For the sake of clarity, it would appear advisable to outline briefly the administrative history and functions of the agencies that operated the program and to appraise the records they created. This method will serve to identify the records and to classify the activities involved.

The Agricultural Adjustment Act of 1933 contained a statement that the acute economic emergency then prevailing had arisen in consequence of the wide disparity that existed between prices of farm products and prices of other commodities. It declared that, as a remedy for this situation, it was the purpose of Congress to establish such a balance between the production and consumption of agricultural commodities, and such marketing conditions, as would restore the purchasing power of farm products to the level of the prewar period 1909-14, which was designated the base period. To protect the interest of the consumer the act also declared that farm production must be so planned that the consumer would pay no more for agricultural commodities than during the base periods. The language of the platforms of 1932 had thus been written into the law of the land.

The Agricultural Adjustment Act, as amended up to the end of 1935, established five principal methods of adjustment. The first called for production control of five, later fifteen, basic commodities, such as corn, wheat, cotton, rice, and tobacco. Production control required a reduction in acreage. This was effected on a national basis and was known as the national acreage allotment. It was planned to be sufficiently large to produce under normal conditions enough of

basic commodities for the domestic and export markets and for reserves to guard against the effects of crop failures. This allotment was apportioned among the States and counties in accordance with their production history, while the allotments for the indivdual farmer who participated in the program were worked out by local and county committees elected by the farmers from their own numbers. In return for the reduction of his crop-producing acreage the farmer received compensation. This compensation was known as a benefit payment, and it varied with the productivity of the land and the crop involved.

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To put this part of the program into operation, the Secretary of Agriculture established the Agricultural Adjustment Administration, under authority of the Agricultural Adjustment Act. Its central files for the period 1933-35, the first period of its history, have been transferred to the National Archives. They consist of approximately 400 cubic feet of records, the larger portion being arranged alphabetically by names of the persons or agencies involved and the smaller by subject in accordance with the commodities or the functions covered. These records reflect the organization, management, and policy of the agency, and they document its relationship with producers, distributors, and consumers of agricultural commodities, and with the public. The functional records contain a wealth of information about the various operations and the problems encountered. They cover (1) acreage adjustments, with particular emphasis on commodity programs, such as the cotton program involving the plowing up of 10,500,000 acres of rich cropland, (2) the seeding and development of pasture crops on an unprecedented scale, (3) the rotation of money crops in areas where rotation had been practiced only on a small scale before, (4) the organization and training of farmer committees to administer the program locally, and (5) related activities. The records contain comments and interpretations of Congressional bills, commendation and criticism, minutes of committee meetings, data on the cost of producing forage crops and suggestions as to their utility, discussions about various types of replacement crops, records of referendums, and information about benefit payments. This type of records will yield the richest returns to the patient and sincere search of welltrained scholars.

Along with production control went the market-

ing agreements which were designed to reduce the cost of marketing. This was the second method used in the adjustment program. The farmer, so it was argued, received only a small proportion of the money which the consumer paid for agricultural commodities. The balance went to pay the cost of processing, transporting, and selling. If improved marketing methods could reduce this cost, the farmer's income would increase without causing any corresponding increase to the consumer. The aim was therefore to reduce this cost. To this end the Secretary of Agriculture was authorized to enter into marketing agreements with processors, distributors, and producers, so that competitive waste might be eliminated, trade practices improved, surpluses directed into proper channels, and the farmer's prices raised. The Secretary was also authorized to issue licenses requiring all handlers to comply with the provisions of the marketing agreements. The Agricultural Adjustment Act of 1935 replaced licenses with orders which were more restrictive and applicable only to certain specific commodities. The cost of administering marketing agreements was to be borne by the industry involved.

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During the first period of their existence the marketing agreements were handled by the various commodity divisions of the Agricultural Adjustment Administration. Many, but not all, of the records reflecting this part of the adjustment program are therefore to be found in the central files of the Agricultural Adjustment Administration for the period 1933-35. These are described above. After the Supreme Court, in the Hoosac Mills case decision of January 6, 1936, invalidated certain parts of the adjustment program, the administration of the marketing agreements was revised. It was centralized in the Division of Marketing and Marketing Agreements that was established in the Agricultural Adjustment Administration. Some of the records of the early period were taken over by this division. On June 30, 1940, this division was combined with the Federal Surplus Commodities Corporation to form the Surplus Marketing Administration. Its records were transferred to the National Archives as records of the Surplus Marketing Administration, in accordance with sound archival procedure.

The marketing-agreement records for the early period, 1933-36, are rich in information on economic conditions throughout the country and on the history, development, and administration of

food distribution activities that diverged widely from customary practices. They cover marketing agreements, licenses, and orders for the fluid milk, evaporated milk, and skim milk industries, and for various crops, such as fruits, vegetables, and nuts. The correspondence contains commendations, criticisms, memoranda, and directives.

Closely interrelated with marketing agreements and production control was surplus removal, the third method used in the adjustment program. Agricultural surpluses were bought, processed, and allocated among State relief agencies, which distributed them among the needy. This distribution was a boon to families who lacked means with which to buy enough food. On the other hand, the removal from customary trade channels of surpluses that depressed the market helped the farmer get more money for his products, presumably from consumers who were able to buy food at higher prices. Most of the surplus removal operations were developed in the Division of Marketing and Marketing Agreements, especially after the program had been in operation for some time; but the operations that were designed primarily to distribute food to the needy were carried out by the Federal Surplus Relief Corporation and successor agencies.

The Federal Surplus Relief Corporation was organized under authority of the National Industrial Recovery Act, approved June 16, 1933, and was granted its charter by the State of Delaware, October 4, 1933. Its operations were at first carried on under the general supervision of the Administrator of the Federal Emergency Relief Administration, who was made its first president. On November 18, 1935, the charter was amended to allow for the change of name to Federal Surplus Commodities Corporation and for the reorganization of its administration. In the new set-up the Administrator of the Agricultural Adjustment Administration was appointed president of the corporation. This resulted in the transfer of control of the corporation from the Federal Emergency Relief Administration to the Department of Agriculture. On June 30, 1940, the corporation was, as we have seen, consolidated with the Division of Marketing and Marketing Agreements into an agency known as the Surplus Marketing Administration. In its turn, this agency lost its identity in the course of the frequent administrative reorganizations that took place in the Department of Agriculture during World War

II in order to speed up the food production and food distribution programs and make them more efficient.

The Federal Surplus Relief Corporation was primarily a relief agency which distributed food and other commodities to the needy. This direct distribution program, as it was called, was financed from funds contributed by the several States and Territories. It was also supported by the Agricultural Adjustment Administration, through donations of livestock and other commodities acquired through surplus-removal operations. In addition to farm products the corporation distributed cotton piece goods, blankets, coal, and other articles. As stated above, the distribution was made on a wholesale scale to State emergency relief administrations, whence the commodities reached the ultimate consumer through local relief agencies.

Some 250 cubic feet of records documenting these activities are in the National Archives. They are maintained as records of the Surplus Marketing Administration and consist of correspondence, memoranda, statistical and narrative reports, instructions, procedures, and dockets covering the distribution of surpluses to State agencies. The records are of great value, inasmuch as they reflect the agency's organization, management, and policies and contain data for the analysis of relief practices and procedures followed by State emergency relief administrations. They also hold adequate materials for measuring the extent and ramification of the relief problem and for evaluating the efficacy of the various agencies in their designated object to provide food for the needy and higher prices for the farmer through the disposition of surpluses.

When the corporation was transferred to the Department of Agriculture in November 1935, the agricultural rather than the relief aspect of its operations became predominant. Although the direct distribution program was continued, the controlling factor was now surplus removal rather than relief for the needy. Some effort was also given to promote the so-called diversion programs, the aim of which was to develop new uses for farm products. The corporation became the principal agency for the disposition of agricultural commodities that were bought by the Agricultural Adjustment Administration.

This part of the surplus-removal program involved procurement, processing, transportation, and distribution. Surpluses were acquired in three different ways. They were purchased by the corporation's Procurement Division, obtained from purchases made by the Commodities Purchase Section of the Agricultural Adjustment Administration, and received as donations from State emergency relief administrations, which purchased surpluses with money granted by the Federal Emergency Relief Administration. Different principles governed these three methods of surplus acquisition.

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Nearly all the commodities that were handled by the corporation had to be processed before they could be distributed for human consumption. The processing was done by regular commercial plants under contract with the corporation. Shipment of the commodities was made on government bills of lading, since the corporation, a Federal agency, defrayed the cost. Settlement with the carriers was made in accordance with the so-called land-grant rate. The method of distribution was similar to that established by the Federal Surplus Relief Corporation.

The records of these operations are maintained in the central files of the Agricultural Adjustment Administration and in the files of the several divisions of the Surplus Marketing Administration. Some of them are among the records of the various branches of the Office of Marketing Services, currently the Production and Marketing Administration.

In the course of 1935 the Commodities Purchase Section of the Agricultural Adjustment Administration was coordinated with the Procurement Division of the Federal Surplus Commodities Corporation. The resultant agency handled the purchase or procurement program. Its records are voluminous, especially those which have been transferred as records of the Office of Marketing Services. Of special interest are the files of the Direct Distribution Section of the Surplus Marketing Administration. They consist of docket files for all commodities of the relief, diversion, and export programs, of correspondence, memoranda, and reports regarding the distribution of surpluses by State agencies, of letters exchanged with commercial firms on the subject of State distribution, and of inter-agency correspondence on various aspects of the surplus-removal operations.

The removal of surpluses through free distribution to low-income families, and the acreage adjustment, or production control, with its attendant benefit payments, were expensive operations. To defray this cost the Agricultural Adjustment Act provided for a tax to be levied on the first processing of the basic commodities. This was the processing tax, which constitutes the fourth method used in the adjustment program. The rate was fixed by the Secretary of Agriculture in accordance with regulations prescribed by Congress. The tax was levied on a seasonal basis, and collected by the Bureau of Internal Revenue. The money was disbursed among the farmers as benefit payments or used for the purchase of surplus commodities.

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Who paid the tax? The question was widely debated. Some argued that it was in large measure passed on to the consumer in the form of higher prices for consumer goods. Others insisted that the processor shifted the burden to the farmer by the simple expedient of paying lower prices for farm products. Many held that the tax was absorbed by the processor, who, in order to do so, reduced his margin of profit and operated more efficiently.

Records in the National Archives may afford answers to these questions. They also point to the many problems inherent in this program and to the procedures used in solving them; and they contain much information relative to the relationship between the processors and the Federal Government. The bulk of these records is in the files of the Agricultural Adjustment Administration. They consist of resolutions, records of hearings, and minutes of committees and conferences. Much of the correspondence consists of commendations and criticisms voiced by the public. The letters requesting repeal of the tax are the most numerous.

Of equal importance with the removal of surpluses was the insurance against shortages. It was deemed necessary to accumulate in years of abundant harvents reserve supplies adequate for use in years of crop failures and scarcity. This was the fifth method used in the adjustment program. To make it workable provision had to be made for financing the storage of commodities on the farms or in warehouses. This was the Ever Normal Granary program. It was administered jointly by the county committees of the Agricultural Adjustment Administration and the Commodity Credit Corporation.

The Commodity Credit Corporation was created by Executive Order Number 6340, October 16, 1933, under authority of the National Industrial Recovery Act. It was incorporated as an independent agency of the Federal Government under the laws of the State of Delaware, and was at first managed and operated in close affiliation with the Reconstruction Finance Corporation. All its capital stock was owned by the United States Government. On July 1, 1939, the corporation was transferred to the Department of Agriculture, where it operated as a regularly established bureau, except for certain legal peculiarities of corporate organizations.

From the time of its creation the corporation made commodity loans upon the recommendation of the Secretary of Agriculture and in connection with the adjustment program. The commodities covered were butter, corn, cotton, dates, figs, mohair, peanuts, pecans, prunes, raisins, rye, tobacco, turpentine and rosin, wheat, and wool. All loans were secured by commodities which were pledged as collateral under either warehouse receipts or chattel mortgages. Many of the loans were made without recourse to the borrower. especially loans on commodities stored on the farms. Some loans were made directly by the corporation, and some indirectly through contractual agreements with local banks or other lending agencies. One distinct advantage of these lending operations was that it enabled the farmer to keep his products from low-priced markets and to sell them at increased prices.

Ninety percent of the records that document the corporation's activities was maintained in central files. These have been transferred to the National Archives. They consist of general correspondence reflecting the corporation's organization, management, policy, and financial commitments; of records that reflect the manner in which the loan program was carried out; of individual producers' claim files; and of circulars, reports, statistical data, and other records that serve to explain the various aspects of the program.

The policy of Congress to establish parity prices on farm products was implemented by the various methods of adjustment outlined above. It was also the declared policy of Congress to protect the consumer. This apparent contradiction in policy was to be resolved by reducing the margin between the prices received by the farmer and the prices paid by the consumer for agricultural commodities. That margin constituted the cost of distribution or the money paid to the middleman. A necessary

corollary to the control of production and prices, therefore, was the regulation of the middleman's profits. To give effect to this policy the Division of Consumers' Counsel was created in the Agricultural Adjustment Administration in 1933, pursuant to provisions of the Agricultural Adjustment Act. The division was abolished in 1943, and its functions were distributed among various branches of the Food Distribution Administration.

During its existence the Consumers' Counsel Division tried to reconcile the conflicting interests of producer, middleman, and consumer. It participated in economic analyses of marketing operations and shared actively in policy-shaping responsibilities. Its representatives took part in hearings on marketing agreements, licenses, and orders. At these hearings they presented testimony on behalf of consumers, questioned witnesses, and gave advice to those who wished to air their views. The division took an active part in all consumers' organizations throughout the country, and it collected statistical data on retail prices of food and other farm products, on the middleman's margin of profit, and on the relation between the consumer's income and changes in retail prices. These statistics were analyzed and made public through the Consumers' Guide, press releases, and radio programs. The division also undertook to determine the probable effect of adjustment measures on supplies available for domestic consumption.

The records of these activities are in the National Archives. They consist of correspondence which the division carried on with other Federal agencies and with private individuals and associations in various parts of the country and of case folders covering various phases of the marketing agreements. These records are a valuable complement to the marketing agreement dockets created by the Agricultural Adjustment Administration. In these and related records the student will find material with which to trace the unfolding of the policy comprehended under the general term of Ever Normal Granary and also the means with which to measure the consumers' reaction to the principles of controlled production.

Such, in broad outline, was the original agricultural adjustment program. It is fully documented by records in the National Archives. But the program was modified from time to time by new conditions, by legislative enactments, and by contingencies interposed by nature.

Of these contingencies the drought of 1934 was the most significant. Within one season it caused a greater reduction in existing supplies of agricultural commodities than was ever contemplated in the adjustment program. It created conditions under which supplies of water, feed, and forage were below minimum requirements. As a consequence, the farmers of the drought-stricken areas. including most of the Trans-Mississippi West, either had to rush their livestock to the market in unmarketable condition and at ruinous prices, kill their animals without remuneration, or let them die of thirst and starvation. Thousands of animals died, and the physical condition of some 1,500,000 deteriorated so greatly that they were unfit for human food or for other purposes, and were condemned. The situation was extremely critical and called for prompt relief measures involving the expenditure of large sums of money.

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To meet this challenge the Agricultural Adjustment Administration and the Federal Surplus Relief Corporation jointly drew up a program for "orderly liquidation of livestock." Other Federal agencies participated in relief work. These were the Bureau of Agricultural Economics, the Soil Conservation Service, the Biological Survey, the Extension Service, the Farm Credit Administration, and the Works Progress Administration. The drought relief program was discontinued in 1935, when weather conditions were more nearly normal. but was resumed in 1936, when another drought appeared. In that year the Resettlement Administration became one of the major relief agencies. The drought relief measures consisted of the buying and processing of livestock, the distribution of feed and fodder, the granting of loans for rehabilitation purposes, and the allocation of food to needy families.

The history of these activities may be traced through records transferred to the National Archives from agencies that took part in the relief work. The records of the Federal Surplus Relief Corporation and its successor agency, the Federal Surplus Commodities Corporation, are voluminous, especially those that cover the cattle-buying, processing, and distribution program. Of particular interest are the reports and analyses of the situation submitted by the director of the Resettlement Administration's regional office at Lincoln, Nebraska, in 1936. Much of his correspondence on this subject is among the records of the Rural Rehabilitation Administration; the

remainder is among the general records of the Farm Security Administration.

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Of greater significance still are the records of the Federal Livestock Agency. This agency was established at Kansas City, Missouri, to coordinate the drought relief work. It collected and disseminated information, assisted in the establishment of feed prices, gave aid in locating, buying, and distribution of feed, facilitated the buying and selling of cattle, tried to prevent speculation, and informed drought sufferers about procedures to be followed in obtaining Federal aid. With the help of the agency's inspectors, State officials and others maintained records of available supplies of feed and other essential commodities.

The agency ceased its operations in 1937. Its records consist of correspondence and reports of field agents. They reflect the conditions that called for drought relief and the manner in which relief measures were carried out. They also throw light upon the reaction of the people in the drought areas to the evil effect of natural catastrophes and to the efforts made by the Federal Government to alleviate suffering and rehabilitate those who stood in need of it.

The drought was nature's method of removing surpluses. Man's most significant counterpart was the Emergency Hog Program, according to the popular interpretation of it. No other part of the adjustment program has been as heartily derided or as bitterly criticized as this. But the prevailing situation was critical. Market prices on hogs stood at less than 4 cents a pound in August 1933. Supplies of pork products in storage were far above normal, the number of hogs on the farms was large, and there were prospects of a feed shortage. It was generally felt that unless the Government intervened a sharp decline in market prices would ensue, causing deterioration in the farmers' position.

Prompted by the farmers themselves, the Agricultural Adjustment Administration inaugurated a hog-purchase program. The actual purchase and processing operations were carried out by private businessmen, who, at a price sufficient to cover the cost of handling, sold the products to the Federal Emergency Relief Administration for distribution to needy families. Pigs weighing less than 80 pounds were converted into grease and fertilizer tankage. The cost to the Federal Government was about \$30,000,000 for 100,000,000 pounds of salt pork, 10,000 tons of grease, and

5,000 tons of tankage. The records of these operations are among the records of the Agricultural Adjustment Administration.

The methods of operating the adjustment program were changed in 1936. In the Hoosac Mills case, January 6, 1936, the Supreme Court invalidated the production control and the processing tax provisions of the Agricultural Adjustment Act. The decision did not affect the marketing agreements and orders, the surplus-removal operations, or the commodity loans. But it led Congress to repeal the Bankhead Cotton Act, which had authorized taxes on cotton marketed in excess of the quota, the Kerr Tobacco Act, which had imposed a sales tax on tobacco, and the Potato Act, which had levied taxes on sales in excess of the potato quota. Congress also enacted the Soil Conservation and Domestic Allotment Act, February 29, 1936, to take the place of the invalidated provisions of the Agricultural Adjustment Act.

Under the new act, soil-building practices and conservation payments took the place of production control and benefit payments. Herein lies one of the chief distinctions between the original program initiated in 1933 and the program that was developed after the Hoosac Mills decision in 1936. The other major distinction was that in the development of marketing agreements the emphasis was shifted from the processors and middlemen to the producers who now became the chief supporters of the marketing agreements. At any rate, the Federal obligations incurred under conservation payments were \$500,000,000 annually, the payment of which must have been beneficial to the farmers.

Other enactments tended still further to modify and broaden the program. The Sugar Act of 1937 required the Secretary of Agriculture to estimate the annual sugar consumption and to establish a quota system for the domestic production of raw sugar. Provisions were made for a sugar excise tax, with a tariff compensation at a similar rate, and for cash payments to qualified producers. To administer the act a Sugar Division was established in the Agricultural Adjustment Administration. Its records that were created before the war are in the National Archives. But the general files of the Agricultural Adjustment Administration contain records dealing with various aspects of the sugar problem,

particularly for the period antedating the passage of the Sugar Act of 1937.

The Hoosac Mills decision cast some doubt over the validity of the marketing-agreement program. To clarify the situation Congress enacted the Marketing Agreement Act of 1937. That act authorized the Secretary of Agriculture, under given conditions, to enter into marketing agreements with producers, processors, and handlers of any agricultural commodity and to issue orders applicable to a few specified farm products. A Division of Marketing Agreements was created in the Agricultural Adjustment Administration to supervise the program. Its history and records have been outlined in earlier paragraphs of this survey.

The records of the Control Committee that administered marketing agreements for honey bees afford a good perspective of the program. The committee was composed of producers and handlers who were authorized by law to regulate their own industry. It administered a complete program in the sense that the program had a definite beginning and ending, 1938–40. The records consist of minutes of the committee, records of hearings, related records, and correspondence dealing with trade practices. They reflect the attitude of industry toward Federal regulations, point to administrative difficulties, and indicate why the program was terminated shortly after the referendum of 1939.

A series of events culminating in the bumper crop of 1937 tended to make the agricultural adjustment program appear unsound and devoid of substance. The great droughts of 1934 and 1936 pointed to dangers inherent in acreage adjustment. The bumper crop of 1937 with the prospects of another record crop in 1938 threatened to ruin the farmers by reason of unmarketable surpluses. The Agricultural Adjustment Act of 1938, supplementing earlier Congressional enactments, was designed to counteract these forces of nature.

By providing for the storing up of larger reserves of agricultural commodities than in previous years it would circumvent the worst effects of droughts By encouraging, through liberal conservation payments, the planting of a larger acreage of soilbuilding crops, it would furnish ready cash for the farmer and enrich his soil for more abundant harvest when it should be needed. By substituting surplus-control methods for the production-control approach of the original Agricultural Adjustment Act of 1933, it evaded the unconstitutional features pointed up in the Hoosac Mills case. By providing for Federal crop insurance for wheat the act of 1938 aimed to eliminate for the individual farmer the worst effects of drought, flood, hail, wind, insect infestation, and plant disease.

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The agricultural adjustment program as authorized by the Agricultural Adjustment Act of 1938, the Soil Conservation and Domestic Allotment Act of 1936, and related legislation was administered jointly by several agencies. Of these the most significant were the Agricultural Adjustment Administration, the Federal Surplus Commodities Corporation and its successor agency, the Surplus Marketing Administration, the Federal Crop Insurance Corporation, and the Commodity Credit Corporation. The records of these agencies are progressively transferred to the National Archives, for the use of scholars wishing to undertake the challenging task of writing the history of the most ambitious farm program ever launched by any government. They are adequate in volume and diversity to enable the students to determine whether the agricultural adjustment program was, as its critics alleged, planned scarcity, or, as the Secretary of Agriculture maintained, a well-matured solution for the Nation's critical agricultural problems. Perhaps the truth lies somewhere between these extreme views. At any rate, the records constitute a challenge to ambitious scholars.

THE MENDEL TRADITION IN BRNO, CZECHOSLOVAKIA

HERBERT C. HANSON

The city of Brno is a thriving business and cultural center in the province of Moravia in Czechoslovakia.¹ It has a population of about 266,000 and is the seat of many important factories, processing plants, and educational and research institutions. During Gregor Mendel's lifetime (1822–1884), Moravia belonged to the Austria-Hungarian Monarchy, and the city was called Brinn.

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Brno is an old city. The Peter and Paul's Cathedral, in Gothic style, was erected in the iourteenth century, and the prominent castle on the hill near the center of the city was built in the twelfth century. Long before this, however, Brno was important because it was on the trade routes between northern and southern Europe.

During the fourteenth century the Augustinian Order established the Saint Thomas monastery and church in Brno.² It is located near the center of the city. Here Father Gregor Mendel served as monk and abbot and conducted his experiments on the garden pea and other plants. His Grace, Father Benedikt Švanda, is the abbot at the present time, the ninth since Mendel. In the fall of 1946 there were only 14 monks in the monastery, although the normal number is 22 to 25.

The garden where Mendel did his chief experimental work is adjacent to the dining room. Since it is on the west side of a wing of the building it receives no direct sunlight until noon. The garden is only about 116 feet long and 18 feet wide, with a path 3 feet wide on all sides, and surrounded by a fence. One is amazed that such a small garden could be so productive in scientific

¹ The author of this article was Food and Agriculture Representative for Czechoslovakia. During his stay there from March 1946 to January 1948 as a representative of the United Nations Relief and Rehabilitation Administration and of the Food and Agriculture Organization of the United Nations, he made several visits to Brno and the Saint Thomas Monastery where Mendel carried on his work. This article reports observations made on these occasions.—Editor.

² Janetschek P. Clemens d'Elpidio, Das Augustiner Eremitenstift St. Thomas in Brünn mit steter Bezugnahme auf die Kloster desselben Orders in Mähren (Brünn, Hofbuchhandlung C. Winiker, 1898), Erster Band. achievement. During the summer of 1946, the garden was planted to grass and flowers such as blue feverfew, large red cannas, and mixed zinnias.

At the north end of the garden is a sandstone monument standing in a clump of plants, including ferns, sedum, Glecoma, etc. It was erected for the monastery in 1922 by John Schaff of Brno to commemorate the one hundredth anniversary of Mendel's birth. It was unveiled on the occasion of the international celebration held that year.

In March 1939, German troops occupied Czechoslovakia; on September 1, 1939, they attacked Poland, and two days later Great Britain and France declared war on Germany. As a "protectorate" the Czechoslovak provinces of Moravia and Bohemia were forced to submit to German rule. In 1940 the Germans occupied most of the monastery and equipped it for use as a hospital. The monks were permitted to occupy one wing, directly behind the church, and were allowed to carry on their usual work. This arrangement was continued by the Russians when they forced the Germans out of Brno in the spring of 1945. Shortly before Christmas 1945, the whole monastery was returned to the order.

Near the end of the war the south end of the main wing of the monastery was considerably damaged by bombing. During the occupation much of the furniture, many paintings, and precious old books and manuscripts were ruined. Many of the most valuable library documents were hidden during the occupation so they escaped damage. The monastery library, which Mendel used, comprises about 10,000 volumes, all catalogued, on history, art, literature, science, religion, music, medicine, etc. Many of these priceless volumes are handwritten on parchment, dating from the thirteenth to the fifteenth centuries. Father B. Rous is the present librarian.

In the wing which the monks occupied during the war is a small room used to house the archives, such as old letters and records of the monastery. The oldest letter, with a lead seal, on skin from a donkey, dates back to 1253. One letter from Pope Gregory IX prescribes the kind of punishment to be administered to men who are not respectful to nuns. There are about 450 of these parchment letters with seals. Much valuable historical data are undoubtedly contained in these old letters and records. Fortunately this room was not discovered by the troops during the occupation.

During the occupation, Mendel's chief manuscript, Versuche über Pflanzen-Hybriden, disappeared and has not been located. The story of this manuscript illustrates some of the sinister effects of the German occupation. About 1910, Hugo Iltis, a young teacher of natural history in Brno,3 discovered the manuscript in a wastebasket in the library of the local Naturforschender Verein (Natural History Society) and placed it in the files of this society for safekeeping. In 1939 when the Germans occupied Brno, Dr. O. Richter, a German professor of botany in the German Polytechnic College of Brno, took over also the chair of plant physiology in the faculty of science at Masaryk University, a Czech institution. All the buildings and facilities of this university were turned over to the German Polytechnic College. Some of the Czech personnel were forced to remain at their duties under orders of Richter. After liberation they reported that Richter carried Mendel's manuscript about with him in his brief case. Richter secured the manuscript apparently when he assumed charge of the quarters of the Natural History Society. Richter was greatly interested in Mendel's biography and wrote several articles on Mendel. When the German soldiers evacuated Brno, it is thought that Richter took the manuscript with him to Germany or Vienna. Some attempts have been made through the War Criminals Commission in Nuremberg to locate the manuscript but without success. It is hoped that the Versuche über Pflanzen-Hybriden will be found and returned to become part of the Mendel Museum in Brno.

Mendel conducted hybridizing experiments on fruit trees and various plants in other gardens belonging to the monastery in addition to the one adjacent to the dining hall. In one garden Mendel had a small cabin of three rooms where he frequently stayed overnight in order to observe conditions more thoroughly. One year he re-

² The Washington, D. C., Sunday Star Pictorial Magazine, Feb. 1, 1948, has an article by Rebecca Marston on the "Museum to Mendel" which is being organized by Dr. Hugo Iltis at Mary Washington College, Fredericksburg, Va.—Editor.

mained in this cabin until the eighth of December, long after winter had set in. His most careful work, however, was conducted in the monastery garden below his room.

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The abbot showed us a tree, just outside the west hall of the monastery, which according to report had been planted by Mendel and was thought to be the result of a cross between a cherry and a plum. Chromosome studies under the direction of Dr. Professor Jaroslav Kříženecký during the winter of 1946–47 indicated that this tree is a primitive type of plum. Further investigation is underway.

The abbot said that Mendel's experiments on bees were similar to those carried on with peas, but since his work had not been recognized he became discouraged and destroyed the data he had collected. He erected a well-constructed bee house. Mendel also crossed wild mice with albinos. The failure of the German botanist, Karl Nägeli, to appreciate the value of Mendel's work undoubtedly discouraged Mendel in carrying on further research, but Provost Father Jan Dvoraček said he was positive that Mendel believed the importance of his investigations would be recognized.

According to records in the archives of the monastery, Mendel, as a teacher in a secondary school (Realschule) in Brno, often took his pupils to the monastery garden where they helped him tie up his experimental plants. He talked about school subjects with them and gave them so much encouragement that all tried to excel. If a student showed interest in some subject Mendel gave him special instruction and advice.

In his later years Mendel took treatments at Roznov in the hills of northeastern Moravia, where one of the most important grass-breeding stations of Czechoslovakia is now located. While on one of these visits he met a student, Kadlec, who later became Brother Alfons in the monastery. Mendel wanted to build a sanatorium in Roznov, but his death in January 1884 prevented the fulfillment of this wish. Mendel's opinion of the healthfulness of the Roznov region is supported by Dr. Demela, a grass breeder now at Roznov, who stated that he moved there because of a tubercular infection. He has fully recovered and feels that Roznov is in a most healthful area.

Abbot Švanda and Provost Dvoraček have a store of incidents about Mendel which they enjoy telling. Mendel frequently missed his meals ember, because he was so absorbed in his research. He enjoyed retelling stories and jokes which he had careful astery read in the Müncher Fliegende Blätter and was pleased when his fellow monks laughed. There le the were 10 boys staying at the monastery in Mendel's ing to time, who received free room and board in return l was for singing in the church, and as boys will they een a sometimes teased the old man from the second under story windows as he dug in the garden.

necký It was stated also that Mendel was fond of dogs t this and kept two. One day when Mendel, in official er incostume as abbot, was riding in a carriage near the square in Brno, his dog Flora, a Great Dane, seeing ts on him from a distance, ran at full speed across the square and, without regard for ecclesiastical ed he dignity, jumped in the carriage onto the abbot's shoulders, pressing him into a corner of the carriage. Mendel also had a tame fox which was in the garden during the day but was shut up at night. They were great friends, apparently, because when Mendel whistled the fox came happily to him.

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A room in the monastery has been refinished as a Mendel museum for showing photographs, manuscripts, mounted plants and insects, instruments used by Mendel, etc. This museum is given the most devoted care by the abbot and his assistants. Here may be seen photographs of the house in which Mendel was born and as it appeared after reconstruction, his christening and death certificates, his school report at the age of 16, his diploma from the natural history section of the Moravian Society for the Promotion of Agriculture, and a photograph of the first page of Mendel's famous manuscript on plant hybrids in excellent handwriting. Among many other interesting photographs are those showing the school in Brno where he taught, the members of the monastery during Mendel's time, people including Mendel who attended the international exhibition at London in 1862, members of the Brno society of natural history, and the unveiling of the monument in the park across the street from the monastery in

Other mementoes in the museum are three microscopes and bills for them, scales used by Mendel, and graphs from a meteorological paper written by Mendel. These graphs show the course throughout the year of temperatures, air pressure, direction and rate of wind, cloudiness, and precipitation at Brno. Mendel kept meteorological records for the Central Meteorological

Institute at Vienna and published annual records for several years. It is stated in records in the monastery archives that Mendel bought a barometer and thermometer for his meteorological observations at a price of about 70 gold coins. He purchased the best available instruments and took excellent care of them as the instruments, especially the microscopes, in the museum show.

Some of the other interesting exhibits in the museum are notes by Mendel on various subjects, labels for plants, vials used for seeds, microscopic slides, spectacles, a cane, an apparatus for bees, gardening tools, a chart showing Mendel's ancestry, a letter from Mendel to his nephew, mounted plants from Mendel's herbarium, gifts from his mother, a wooden traveling case, a painting of Mendel as abbot, written permission of his father to enter the monastery, a letter from his father, a poem written by Mendel, a letter from Nägeli, a seed bill from a firm in the Netherlands, orders for seeds in Mendel's writing, letters written by Mendel as abbot to the governmental authorities protesting the taxation of the monastery, Mendel's class book when he was teaching, a chair made according to Mendel's instructions, and a dedication of music to Mendel. Of great interest is Mendel's copy of Charles Darwin's The Origin of Species, with portions marked, particularly those dealing with the crossing of plants and animals, indicating that he had read it very carefully.

According to Abbot Svanda and Provost Dvoraček, Mendel, who was of German origin, spoke Czech correctly and only by his accent could it be recognized that he was not a native Czech. When he became abbot he brought to the monastery Father Krátký, a Czech, who introduced and brought about considerable use of the Czech language. While Mendel was abbot, he accepted six novices into the monastery, only one of them German. Mendel gave sermons in Czech and participated in Czech national celebrations, although Czechoslovakia at that time was under Austria. Abbot Svanda stated that Mendel changed the monastery from a German to a Czech institution and deserves much credit for this. Mendel enjoyed Czech music, securing much inspiration from it. During Mendel's time, Father Paulus Carolus Křížkovsky, considered the most important composer of Czech choir music before Friedrich Smetana, was also in the monastery. Other monks at this time were Father Rambousek, a musician and a teacher in the

secondary schools, and Dr. Prof. Bratranek, also a musician, who later became rector of the university at Krakov.

Today, several institutions in Moravia carry on genetical work, with emphasis on the more immediately practical side. The plant breeding department of the Zemědělské Výzkumné Ústavy pro Výrobu Rostlin (provincial research institutes for plant production) is in charge of breeding work on cereals, maize, alfalfa, soybeans, sudan grass, castor-beans, pumpkins for seeds rich in oil, tobacco, and vegetables, including paprika (for vitamin C content), celery, beans, lettuce, onions, and tomatoes.

There are a number of stations scattered throughout Moravia that work on crops suited to the regions where they are located. The station at Roznov in northeastern Moravia specializes in the breeding and multiplication of seeds of grasses. The station at Přerov in central Moravia works on grain, maize, and legumes. The new Mendeleum Institute at Lednice in the extreme southern part has started work on maize, tomatoes, onions for seed, and other vegetables. The research station at Pohorelice is being expanded and will specialize in crops suitable for dry farming. The Institute for Plant Breeding and Animal Husbandry in the College of Agriculture and the Department of Animal Husbandry in the College of Veterinary Science at Brno are also engaged in breeding work and cooperate with substations in various parts of the province.

When Masaryk University was founded at Brno in 1919, the establishment of a department of genetics was considered, according to Dr. Kříženecký. Plans were prepared in 1930 for a Mendel institute of genetics, but a number of material and personnel obstacles prevented its establishment before the second world war. Masaryk University has now approved the organization of a Mendel institute of genetics, for the purpose of conducting fundamental research in plant, animal, and human genetics. The director of the institute will also serve as professor of genetics. The purposes of the teaching program are to give elementary and advanced courses in fundamental genetics for university students and applied genetics for students in the agricultural, veterinary, and medical colleges. In addition this institute will be an advisory center in fundamental genetics for all institutions concerned with applied genetics in Moravia. Dr. Kříženecký, who at present is professor of zootechnics in the agricultural college at Brno and who has worked in various laboratories

in the United States of America, has been named as director of the institute and professor of genetics in Masaryk University. He plans to cooperate closely with the museum in Saint Thomas Monastery in the collection and study of all data relating to Mendel and his activities from the historical point of view.

Masaryk University, the colleges of agriculture and veterinary medicine, the provincial research institutes for plant production, and the research stations in various parts of Moravia suffered in many ways from the occupation and war activities. Not only were buildings damaged and destroyed by bombing, artillery, machine guns, etc., but furniture, equipment, and records were destroyed, Many investigators were removed from their posts, and the Germans controlled the work that was done. The training of new personnel was greatly restricted or impossible, and usually equipment and supplies could not be obtained. The publication of data and the exchange of literature and ideas practically ceased. This condition lasted from 1939 to 1945 and caused a great setback to both research and teaching, not only in Moravia but throughout Czechoslovakia. It will take several years before these institutions are in good condition again. The United Nations Relief and Rehabilitation Administration aided greatly by contributing equipment, supplies, and literature, but it could furnish only a small part of the needs. Now all the workers at these institutions are eager to secure new equipment and to exchange breeding materials and publications with other countries so that the six-year gap during the war can be made up. Much has been done to repair buildings, but the lack of adequate equipment, reagents, and recent publications is a great handicap to the research workers and teachers. The Food and Agricultural Organization of the United Nations is helping by providing technical specialists from the United Kingdom, the United States, and other countries, who furnish information about progress made in various fields during the war. They hold demonstration schools in special fields such as the hybridization of maize which are attended by plant breeders from different countries and arrange for exchanges of breeding materials, scientific publications, and ideas. Much remains to be done, however, in order that scientific work may be full reestablished in Brno, Czechoslovakia, on the broad and thorough basis which characterized Mendel's research.